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HINTS ON
THE
HEALTH OF THE SENSES

SIGHT
HEARING
VOICE
SMELL & TASTE
SKIN.

BY DR. CHARLES J. FINE

NEW YORK: G. P. PUTNAM'S SONS



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OPINIONS OF THE PRESS.

'Admirably written for the general reader by one who has paid more than ordinary attention to the delicate organs of the senses, and who, we think, has done good service to the public in publishing the outcome of a matured experience. The book is pleasant to read, and of great value to teachers and parents.'

ABERDEEN JOURNAL.

'Dr. Macnaughton Jones in his "Hints" treats of the five senses, and deals with various ailments peculiar to each. With the help of excellent illustrations, he explains some of the most useful inventions for relieving the eye, the ear, or the voice, and the structure of the organs. The information is given under numerous distinct headings, greatly facilitating reference, and the work may be carefully studied by every one with advantage, for, unhappily, we can none of us sell our life interest in the ills that flesh is heir to.'

MORNING POST.

'The intention of the author in writing this book is to give the public in a simple form, and free from technical language, some useful suggestions for the preservation of the delicate organs of special sense. . . . We have rarely met with a book dealing with physiological matters so easy to follow, and so replete with information. The chapters on seeing, hearing, and the voice, may be read with profit by everyone. The work is profusely illustrated with diagrams, &c.'

BIRMINGHAM DAILY GAZETTE.

OPINIONS OF THE PRESS.

'The book is simple and practical in style, and embodies a great amount of information of a kind not ordinarily accessible in such a shape.'

SCOTSMAN.

'The whole work is full of wise advice, clearly and convincingly given, and excellently illustrated by numerous diagrams. If Dr. Jones's hints were only followed, English men and women would be a considerably healthier and happier body than they are or have been.'

DERBY MERCURY.

'The style throughout is pointed and concise, and admirably suited to the class of readers for whom the book is intended. To give additional clearness to what is said in the text, a large number of illustrations have been introduced, all of which are carefully executed and very suggestive.'

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'Dr. Jones discusses with singular clearness and conciseness the character of the various diseases affecting the senses, how to guard against those diseases, and what steps to take when they appear. Will be found full of valuable and most important information.'

DUBLIN FREEMAN'S JOURNAL.

'Dr. Macnaughton Jones's book is one that may with advantage be studied and learned by heart.'

ENGLISH MECHANIC.

'It is highly commendable all round, and is calculated to be correspondingly useful.'

WESTERN MORNING NEWS.

HINTS
ON THE
HEALTH OF THE SENSES

LONDON: PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
AND PARLIAMENT STREET

THE
HEALTH OF THE SENSES

BY

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CONSULTING SURGEON TO THE CORK MATERNITY
SURGEON TO THE CORK OPHTHALMIC, AURAL, AND THROAT HOSPITAL
SURGEON TO THE COUNTY OF CORK GENERAL HOSPITAL
SENIOR PHYSICIAN, CORK FEVER HOSPITAL
ETC. ETC.

SECOND EDITION

LONDON
LONGMANS, GREEN, AND CO.

1884

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PREFACE
TO
THE SECOND EDITION.

AN over-wise reviewer, while acknowledging that there are 'many useful hints' in the first edition of this little work, which has been exhausted within three months from its appearance, remarked that 'few persons are likely to have all their senses go wrong at the same time,'¹ and he does not think that any 'general knowledge' on such important organs as the eye and ear can be said to be 'desirable.' This may represent the scientific standpoint of any one who has all

¹ *Chemist and Druggist*, June 14, 1884.

his senses alive to the advantage to be derived from the '*ill-health*' of the senses. The author certainly did not anticipate that any one who had taken leave of *all* of his senses would be likely to profit by the hints this work contains. Another writer in a well-known journal¹ gave it a place in the 'boudoir' rather than on the library shelf. It might, however, prove more useful in the former than if kept on the latter. And if, in the fact that it is 'beautifully printed,' and 'so prettily bound,' and 'altogether so dainty,' there is a good reason for its *use* in the drawing-room rather than its *disuse* in the library, the author will have little reason to complain of his publishers. An authoritative London medical journal² accounts for the place thus assigned to it when it says that 'the style of the work renders it easy reading, and it undoubtedly contains many truths which should be brought home to the many;' and another,³ 'that

¹ The *Academy*, August 30, 1884.

² *London Medical Record*, July 1884.

³ *Medical Press and Circular*, July 2, 1884.

it is one of the best small popular works which an interest in health subjects has lately called forth,' while a third states that it 'decidedly fulfils the purpose for which it is intended.'¹ Some have failed to see the *object* of the work. This has been so well put by several journals, that the author is saved the trouble of reiterating his reason for imagining that such a work would be a useful one, by giving here a few quotations. 'There is,' says one writer, 'a large amount of public ignorance of the small matters that affect the health of these delicate organs; and the hints given in this volume may be found of incalculable value in their preservation.'² 'Dr. Jones's purpose is not to teach people how they can cure themselves, but rather how they can guard against complaints; his object is to remove some of the public ignorance of small matters which affect the health of the eye, ear, and the throat.'³ 'Ignorance

¹ *Lancet*, September 6, 1884.

² *Christian World*, June 14, 1884.

³ *Notts Daily Guardian*, July 24, 1884.

or indifference, perhaps both, have much to do in causing so many of these lesser evils, that a book of handy proportions that seeks to put people on the right path deserves a welcome.'¹ 'It is the public ignorance on small matters which, when neglected, lead to serious evils, that he has determined to combat.'² 'As the work is designed for popular use, the language is couched in the simplest and most popular language, and there is no one of average intelligence who will not read through the book from cover to cover without difficulty, and without acquiring much information of the most valuable and, indeed, essential character.'³ 'Our present position and customs,' says a writer in the 'Queen,' and not a few of our habits, are adverse to good health; and we may be thankful to those who, like our author, direct our attention to these things, while teaching us how to

¹ *Brighton Herald*, June 16, 1884.

² *Aberdeen Journal*, June 20, 1884.

³ *Dublin Freeman's Journal*, July 9, 1884.

avoid or remedy the ills which flesh is heir to.'¹ These few excerpts, taken at random from a large number of notices of this work, prove that the object with which it has been written has not been misinterpreted. In this edition little has been omitted or added. Special hints on 'exercise' and 'water impurities' have been included in the chapters on the skin and diet. Some paragraphs in the short introductory chapter referring to the relation of the Church to matters of public health, which were not necessary, and might have rightly been considered out of place in a work of this nature, have not been included. The appendix on 'Health Resorts' has been enlarged. With these exceptions, and that of a careful revision of the book, and the correction of some typographical errors, little alteration has been made. It may be well to repeat that the special hints it contains on the organs of the senses are given with the experience of over fifteen years' constant daily work in an

¹ *The Queen*, June 28, 1884.

x PREFACE TO THE SECOND EDITION.

hospital, now well known and established, containing a large number of beds, originally created by the author, for the treatment of affections of the Eye, Ear, and Throat.

141 HARLEY STREET, CAVENDISH SQUARE :

August 30, 1884.

PREFACE
TO
THE FIRST EDITION.

My chief desire in writing this little work is to offer to the public, as far as possible free from technical language and in the simplest form, some useful suggestions for the preservation of the delicate Organs of Special Sense. Many years of daily work in the departments of surgery devoted to the treatment of affections of the Eye, Ear, and Throat, outside general work as Physician and Surgeon in two large hospitals, have afforded me an opportunity of seeing the serious consequences which follow from public ignorance of *small* matters that affect the health of these delicate organs.

I have endeavoured to group together some useful hints as to those practices to be avoided, and some suggestions for simple plans of treatment in emergency, until medical advice can be had. These 'hints' are not altogether of recent compilation. They were interpolated in lectures on the Senses which I have from time to time delivered to a scientific Society.

The 'Health of the Senses' cannot be rightly considered apart from that of the other organs of the body, and without some reference to the working of those vital processes necessary for the maintenance of the health generally. There are now numerous popular works by eminent medical men, in which the health of the body and public hygiene are most exhaustively discussed. I have added a few special chapters on habits—such as those of Diet and Clothing—that affect the General Health, and I have appended a tabular statement of the most important Spas and Health Resorts of the Continent and the United

Kingdom. These are classified according to the affections for which they are found most efficacious.

The work is meant for the guidance especially of those who have but little technical or scientific knowledge of the physiology of such intricate parts as the organs of special sense. It is to be regretted that such general ignorance of the functions of these organs should prevail. This deficiency in the education of the people, it may be hoped, will not be so common when the importance of a knowledge of elementary physiology, from a sanitary point of view, comes to be more generally recognised than it is at present.

A work I may be excused for recommending to popular readers is 'The Five Senses of Man,' by Bernstein, in the 'International Series.' Small models of the Eye and Ear and Larynx are now to be had of any instrument-maker. The study of the organs of Sight, Hearing, and Speech will afford to many a delightful occupation. Through life they

will find the information thus gained frequently turn to account.

In conclusion, I wish to remark to my readers that I by no means look on this little work as anything more than a brief popular summary of useful hints which may prove of service in certain commonly occurring affections of the organs it specially deals with. If it does no more than indicate when skilled advice is to be sought, and prevent dangerous delay in securing such, I shall have secured my object.

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THE
HEALTH OF THE SENSES.



CHAPTER I.

INTRODUCTORY.

THE EFFECTS OF HABITS ON THE HEALTH GENERALLY.

Preventive Medicine.—A great deal has of late been written upon the responsibility which attaches to the members of the medical profession, in educating the general public on the evil effects which are produced by the habits and customs of the age. It has been, I think, rightly argued that, seeing the influence which physicians possess throughout every rank of life, it is a duty which they owe to the State and society to expose the pernicious results of many of the practices and fashions of the modern time. Since what is styled 'preventive medicine' has come to be recognised as the highest

aim of the medical art, the relationship of medical men to the public has entirely altered. A far higher duty now devolves on the medical man than that which appertained to his predecessors; for, with our increased knowledge of the influences which preventable causes exert on society at large, comes the responsibility, which he must accept as a faithful servant of the State, of warning the people of the certain punishment that follows the infraction of those laws of health on which the security both of the individual and the nation depends.

But this is a hard, and indeed at times a thankless, task. It is hard, for the soil has not been prepared by previous cultivation for the reception of the seed one would desire to sow. It is thankless, because people do not, as a rule, care to be warned of that which they are satisfied to consider the very remote consequences of bad habits and vicious practices. Men who speak of these are looked on as alarmists. Modern luxury and fashion have more alluring arguments to advance, in the promotion of human ease and the flattery of human vanity, than the sterner truths which tell of disease, misery, and death, as the offspring of those practices and customs which society encourages, and which our nineteenth-century social life demands

of its victims. The soil, I have said, has not been prepared, and by this I refer more particularly to the neglect exhibited generally in our schools and universities in the better education both of women and men in all the branches of public hygiene. I may best express my view on this matter by quoting Professor Huxley's opinion.

Professor Huxley on Elementary Education.—
'The chief ground,' he says, 'on which I venture to recommend that the teaching of elementary physiology should form an essential part of any organised course of instruction in matters pertaining to domestic economy, is that a knowledge of even the elements of this subject supplies those conceptions of the constitution and mode of action of the living body, and of the nature of health and disease, which prepare the mind to receive instruction from sanitary science. It is, I think eminently desirable that the hygienist and the physician should find something in the public mind to which they can appeal—some little stock of universally acknowledged truths, which may serve as a foundation for their warnings, and predispose toward an intelligent obedience to their recommendations. Listening to ordinary talk about health, disease, and death, one is often led to

entertain a doubt whether the speakers believe that the course of natural causation runs as smoothly in the human body as elsewhere. Indications are too often obvious of a strong, though perhaps an unavowed and half-unconscious, under-current of opinion, that the phenomena of life are not only widely different in their superficial characters, and in their practical importance, from other natural events, but that they do not follow in that definite order which characterises the succession of all other occurrences, and the statement of which we call a law of Nature. . . .

‘ Sufficient knowledge has now been acquired of vital phenomena to justify the assertion, that the notion that there is anything exceptional about these phenomena receives not a particle of support from any known fact. . . . The activity of this mechanism is dependent upon many and complicated conditions, some of which are hopelessly beyond our control, while others are readily accessible, and are capable of being indefinitely modified by our own actions. The business of the hygienist and of the physician is to know the range of these modifiable conditions, and how to influence them towards the maintenance of health and prolongation of life ; the business of the general public is to give an intelligent assent,

and a ready obedience based upon that assent, to the rules laid down for their guidance by these experts. But an intelligent assent is an assent based upon knowledge, and the knowledge which is here in question means an acquaintance with the elements of physiology. It is not difficult to acquire such knowledge. What is true, to a certain extent, of all the physical sciences is eminently characteristic of physiology—the difficulty of the subject begins beyond the stage of elementary knowledge, and increases with every stage of progress. While the more highly trained and best furnished intellect may find all its resources insufficient when it strives to reach the heights and penetrate into the depths of the problems of physiology, the elementary and fundamental truths can be made clear to a child.'

It is to this general teaching in our schools, and the practical carrying out of the principles of physiological laws, that I refer as the 'cultivation of the soil.' To teach physiology will not be in itself sufficient. The physiological laboratory and class may rather produce bad effects if the laws there taught and demonstrated are being daily broken by absurd school practices and rules, which are framed rather for the ill-health than the health

of the young. The thought may be encouraged that physiological precepts can be broken with impunity, and a carelessness of attention to them engendered in after life.

The Church in the matter of Public Health.— And here, as a physician, while acknowledging the responsibility that attaches itself to every physician as a guardian of the physical health of the public, I may perhaps, without being deemed presumptuous, say a word on the power and influence of those who have undertaken the care of our psychical nature. I may throw out the hint, that the golden opportunities of restraining hurtful practices which are offered to members of the clerical profession might be more freely and frequently made use of.

True it is that, in many instances, they are not conversant with the laws which regulate the physical changes taking place in our bodies, and hence can hardly realise the important influence which those laws exert on our mental state, and hence on our moral life. The absence of physiological knowledge in the ranks of the recognised moral teachers of the people is to be deplored on more grounds than the sanitary one. I remember reading, some time since, a charge of the

late Archbishop of Canterbury, in which this want was eloquently and forcibly insisted on.

But when we consider the many habits which in every-day life are indulged in, that produce physical disfiguration and mental deterioration, and which require but the simplest and most rudimentary acquaintance with the laws of health to understand the baneful result of, it does seem strange that we do not more frequently hear a more emphatic denunciation of such habits, when evidences of the results of these practices are brought constantly under the immediate observation of our modern preachers.

This was not so much to be wondered at when the direct relationship (that 'double-faced unity,' as Dr. Bain so well expresses it) which exists between our mental and our bodily states was not as thoroughly and as generally understood as it now is. But when the science of psychology, and the knowledge of perverted mental states, are every day giving us fresh evidences of the effects of habits in producing physical changes in the brain which result either in criminal or insane acts, it is surely time that for the system of general moralising should occasionally be substituted a more special and practical teaching.

And I may venture to express a belief, which has been more fully and forcibly put by others before me, that in controlling the habits, tendencies, vices, and practices of social life, the Church has at least an equivalent power to the medical profession. She will exert this power best by teaching the people the dire influences, both on mind and body, that are exerted by the pursuits and occupations which society encourages, and which both religion and morality, were the truth fearlessly proclaimed, alike forbid.

Habits as they affect the Health.—Lord Bacon wrote the common experience of us all when he said :—‘ There is a wisdom in this beyond the rules of physick ; a man’s own observation, what he finds good of, and what he finds hurt of, is the best physick to preserve health. But it is a safer conclusion to say, this agreeth not well with me, therefore I will not continue it, than this, I find no offence of this, therefore I may use it.’ Yet it is this last line of argument that most persons advance when debating the prudence of continuing this or that habit, of the deleterious effects of which on their health they have had some warning. When the physician urges on some one the danger or folly of any habit or course of practice, the evil consequences

of which in other instances he is cognizant of, he is met with the expostulation, that some friend indulges much in the same way, and that he or she is, or has been for years, perfectly healthy. The impunity with which a certain proportion of men can indulge in some given vice or habit, is regarded as sufficient proof of the harmlessness of its effects. I have known a friend who smoked his three or four pipes of strong cavendish every day for years, and who could never work without this average daily use of the weed 'which soothes, but not inebriates.' Yet in the end he broke down with functional heart troubles, and had to give up his calling.

Or like the man mentioned by Dr. Graves in his lectures, who conducted his large business with singular ability, and who never drank less than a quart of brandy or whisky in the twenty-four hours; he died, however, at a comparatively early age, of the effects of alcohol. It is told of Dr. Fordyce, the celebrated chemist, that, arguing from the habits of carnivorous animals, and applying the principles of chemistry and physiology to his digestive powers, he determined to exist on one meal daily, and for more than twenty years he did so. His dinner-hour, Dr. Letheby tells us, was 4 P.M., and he held a reserved seat at Dolly's Chophouse for that hour. His

dinner consisted of some fish or capon, one pound and a half of rumpsteak, bread and potatoes; he did not stint himself in stimulants, for he disposed of a quarter of a pint of brandy, a tankard of strong ale, and a bottle of old port, in the hour and a half which he allowed himself for the meal; and, thus supported, he proceeded to meet his class in chemistry, and lecture.

Much in the same way we have conscientious vegetarians, enthusiastic water-drinkers, constitutionalists in walking, sleeping, cold-bathing, who live by rule and follow a habit from the force of some example. An old gentleman of my acquaintance died suddenly not long since, who, I believe, for the greater part of his life, broke the ice on the coldest day in winter, and took his plunge. And some enthusiastic fanatic will be found to follow his example, and preach an inversion of every process at work in our system, because, forsooth, he gets no paralytic fit, and does not die of an attack of inflammation of his lung.

Morphia and Chloral.—And so men and women become opium-eaters and chloral-drinkers; the latter are becoming more numerous in this country of late, where *chloral sleeplessness* and the insanity which arises from chloral are more frequently heard

•

of. It is well that this should be known by those who assume the responsibility of administering chloral, and those who are now, apparently with impunity, employing this soporific agent. The same may be said of morphia and its injection subcutaneously to relieve pain. *Morphia mania* is a species of insanity well known to alienists. And I might multiply examples to prove the dangerous ground on which those tread who argue from example in the practice of some habit—the break at last, as in the case of Dr. Graves' toper, will assuredly come, and if it does not, he or she is the fortunate exception to this rule.

Eccentricity in Habits and Dress.—And there is the so-called eccentric type of human animal, who, in order to appear singular and somewhat different from his fellows, adopts some line of conduct to render himself remarkable, and always parades this or that eccentric habit before the public, the fear being constantly present that, did he relinquish it, his personal importance or identity might vanish with it. There are numbers of 'Oscars' to be met daily in society. Some infatuated beings assume an eccentric habit, even at the expense of their personal comfort and health. Often we see extraordinary costumes, completely out of keeping with

the time and season of the year. Of some feminine embellishments, for example, we may think of Dean Swift's grace over the rabbits, and with him thank Providence that 'we have seen enough.' Do such eccentric individuals reflect with Teufelsdröckh, Carlyle's Philosopher, 'by what strange chances do we live in history? Erostratus, by a torch; Henry Darnley, an unfledged booby and bustard, by his limbs; most kings and queens, by being born under such and such a bed tester; Boileau Despréaux (according to Helvetius), by the peck of a turkey; and this ill-starred individual, by a rent in his breeches.' Of late, indeed, in theatres and ball rooms we might have fancied that fashion would bring us to something very near the 'regimental regulation of Bolivar's cavalry trooper.' 'A square blanket, twelve feet in diagonal (some were wont to cut off the corners and make it circular); in the centre, a slit is effected eighteen inches long; through this the mother-naked trooper introduces his head and neck, shielded from the weather, and in battle from many strokes (for he rolls it about his left arm), and not only dressed, but harnessed and draperied.'

CHAPTER II.

THE SIGHT.

Childhood and Infancy.

MANY are born with delicate eyes, or eyes in which the power of adjustment for distance, or the

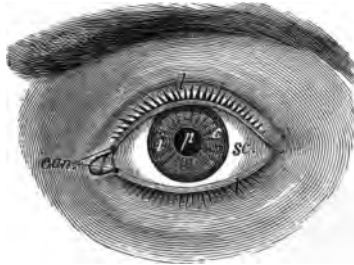


FIG. 1.—EXTERNAL PARTS OF THE EYE.

c., cornea; *p.*, pupil; *i.*, iris; *sc.*, sclerotic coat (or white of the eye);
i., eyelids; *can.*, canals for the passage of tears.

shape of the eyeball, or the transparency of the refractive media, or it may be the formation of the eyelids, or the lachrymal apparatus which provides for the secretion of tears, is defective. Some of these troubles are easily rectified in infancy. Un-

fortunately many infantile affections of the eye are neglected, and the consequence is either permanent impairment of vision or disfigurement in after life.

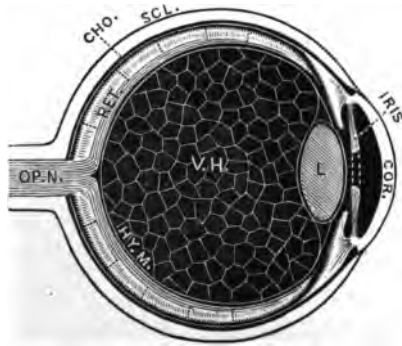


FIG. 2.—SECTION OF GLOBE.

COB., cornea; L., lens; V.H., vitreous humour; HY.M., hyaloid membrane; OP.N., optic nerve; CHO., choroid tunic; SCL., sclerotic tunic.

Let me briefly refer to some of these affections of childhood.

Discharges from the Eyelids.—Infants and children often suffer from discharge from the eyelids—this may be of a serious nature, or it may be the result of slight cold, caught from draughts, or change of clothing, &c. This discharge should be looked to early, before it affects the important structures of the eye, and perhaps causes an ulceration of the cornea. Some very mild astringent lotion, com-

bined with great cleanliness, will, as a rule, be sufficient for the slight catarrhal condition, and a little vaseline ointment smeared on the eyelids. But if the discharge from the lids be profuse, and the opening of the child's eyelids a matter of difficulty, advice should be had at once. Many eyes are lost through the neglect of parents to see to this discharge, and to have the eyes inspected by a physician before the inflammation has gone too far. But the one thing to insist on is *perfect cleanliness*, and indeed in all affections of the eye in infants, the observance of this rule is of equal importance. A little fine syringe to insert gently between the eyelids, to wash the eyes with, is most useful. Most of these discharges from the eyes contain minute parasitical organisms, or fungi, and hence the importance of cleanliness and the value of mild antiseptic preparations in their treatment.



FIG. 3.—GILBERTSON'S SYRINGE.

Answers for washing out both Ear and Eyelids.

Poultices.—Poultices are remedies to be used with the greatest caution, not alone in affections

of the eye in infancy and childhood, but also in adult life. Many eyes are lost by injudicious poulticing. It promotes suppuration, and while this is well enough, when our object is to bring matter to the surface, or encourage it to point, as in the ordinary boil, it is not desirable that pus should form in the structures of the eye, for suppuration is here followed by loss of vision. Poulticing, then, should not be practised without consideration or proper advice. It does no harm, as a rule, when the inflammation is in the *eyelids*, as in the ordinary stye; it promotes the formation of the little abscess and its discharge, does not affect the globe, and is always a soothing remedy where the stye is coming forward, before it bursts or is opened, the latter being a far preferable method of terminating its career. Warm stuping is much safer than poulticing, but this also must be used with caution.

Infantile Cataract.—An infant may be born with cataract. This is seen through the pupil as a clouding of the crystalline lens of the eye, and can only be got rid of by operation. Should a child have congenital cataract, or develop it early in childhood, the earlier it is operated on the better, and the greater chance of the child seeing or regaining vision. This is most important. Parents

often neglect cataract, and wait to seek advice until further changes have occurred in the lens, and perhaps also in the retina, that nullify the effects of operation.

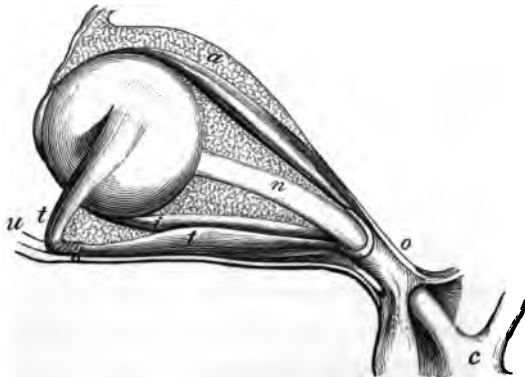


FIG. 4.—GLOBE OF THE EYE AND MUSCLES, WITH THE OPTIC NERVE
(HELMHOLTZ).

a t t, muscles; *c*, commissure; *o*, optic nerve. The curious ideas of many persons regarding the shape of the globe of the eye and its attachments prompt me to insert this drawing (after Helmholtz); it shows the eyeball in the bony case with its muscles; the optic nerve with the nerve commissure is shown, one muscle having been removed.

Deformities of the Eye.—Every deformity of the eye in children should be seen to *as soon as discovered*. If it be squint, it may be rectified by proper glasses; by attention to the general health; by the expulsion of intestinal worms. The earlier an inveterate squint is operated on the better. Postponement, if the case be one suitable for operation, but increases the chance of failure, or

the necessity for a more complicated operation. The ordinary operation for squint is a very simple and by no means a serious one. If the deformity be in the shape of the eyelids, or the presence of tumours, or small *nævi* (mother's mark) on the lids, then early operation will cure, when postponement only leads to further deformity; the size of the tumour and the extent of the mark increase the difficulty of removal without a scar. The same remark applies to the tear passages, obstruction in which leads to watering of the eye, and often to abscess in the tear sack at the inner angle of the eye. Early attention to this watering may save permanent deformity.

White Spots on the Transparent Part of the Eye.

—Children who suffer from ulcers on the cornea of the eye are apt to have as a result small white opacities or specks. By treatment, when these spots have recently formed, they can be in great part, if not entirely, dissipated, though often we must wait for time for their final absorption. If they are permitted to remain without treatment, they may form indelible marks on the cornea and interfere permanently with vision.

The Eyelids.—The lids in children are frequently affected, the little ducts that pour their

secretion on the eye, and which keep the lids moist, and the lashes healthy, are blocked up and inflamed, then crusts gather, styes result, or the lids are adherent in the morning. Here again cleanliness is the sheet-anchor. Lotions and ointments are use-

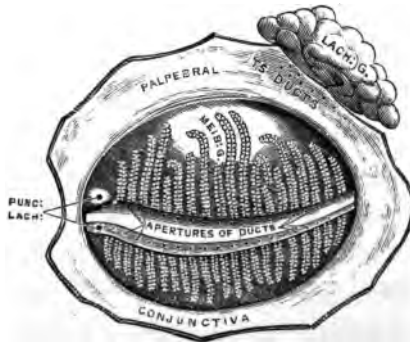


FIG. 5.—THE GLANDS AND DUCTS OF THE EYELIDS AND TEAR GLAND (SEEN FROM INSIDE).

Lach. G., tear gland; Puncta Lachrymalia, openings of canals to convey the tear secretion to the nose; Meibomian Glands, glands of eyelids.

less unless the unhealthy lashes are removed (pared down carefully to the margins of the lids) and the crusts all softened and detached (say with a common knitting-needle) and the eyes carefully sponged. If this affection—and it is often very troublesome—is not attended to, the lashes fall out or grow irregularly, and the eyes are disfigured.

General Health of Children.—It must ever be remembered that many of the most annoying and

troublesome of children's eye diseases are dependent upon the state of their general health, as some of them are due to hereditary causes, and are actually inherited. Hence the importance of not overlooking the general management of the child's health in our anxiety about the local ailment.

Diet of the Child.—The diet of the child has above all things to be attended to; healthful and nutritious food; the avoidance of all trash, as cakes, sweets, much fruit, pastry, &c., which may act injuriously on the child's blood and create gastric disturbance, must be insisted on; good milk diet, with oatmeal porridge (in the morning), if it can be taken; moderation in meat; farinaceous foods, rice, corn flour, light puddings, may be given. The heated blood shows itself in some ugly skin eruption both on the head and face, that frequently accompanies eye affections in children. Proper bathing of the body at a temperature suitable to the temperament of the child, attention to the ventilation of the bedroom, the spaces between the cots, regulation of the secretions, good open-air exercise, with proper preservers worn on the eyes, the administration internally of iron tonics or cod-liver oil, will often do more to restore the healthy state of the eye than severe local measures.

Kindness and Gentleness with Children.—Above all, *be kind to children with eye trouble*, and be patient with them and cheerful.

In treating the eye use the organ gently; do not press on the eye in dressing it; be sure and get the drops ordered into the eye by gently drawing down the lower eyelid while the upper is slightly raised, and the drops are allowed in from a drop-bottle. Try and avoid making the child struggle; the little sufferer is sure to do himself harm if he struggles in hands not educated to control the eye properly.

To place a drop inside the Eyelids on the Eye.—Let the person be seated, lay the tip of the forefinger of the left hand gently on the cheek, about a quarter of an inch below the

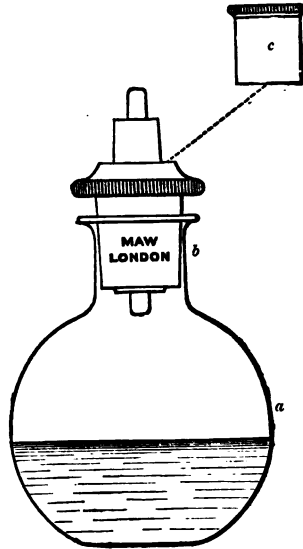


FIG. 6.—COLOURED GLASS DROP-BOTTLE OF AUTHOR.

a, bottle; *b*, vulcanite and rubber stopper and tube in one piece; *c*, vulcanite cap.

This drop-bottle has these advantages:—1. It prevents the action of light on the fluid; 2. It prevents the entrance of air and dust and the formation of fungi; 3. It is readily used, and the drop is expelled, when the bottle is inverted, by the heat of the hand; 4. the drops are not wasted.

margin of the lower eyelid ; with the middle finger press slightly on the bone below the eyebrow and thus keep the upper eyelid from closing. Now, without any pressure on the globe of the eye, use with the right hand the drop bottle.

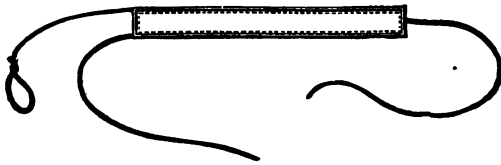


FIG. 7.

Shows the useful and simple eye bandage of Mr. Liebreich.

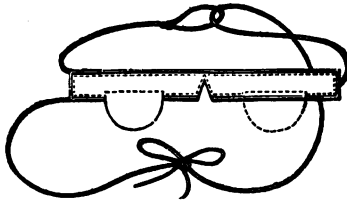


FIG. 8.

The same (slightly modified by the author). It is made of a piece of linen long enough to cross the forehead and cover the eyes. To one end a single piece of tape is attached in the centre of the bandage. To the other side a shorter tape with a loop worked at end is stitched and another longer piece of tape. To apply the bandage it is passed across the eyes, over any light dressing of linen or cotton-wool ; the single tape is carried through the loop on the top of the head, and brought back behind the poll, to be tied with the piece of long tape attached to the other side of the bandage.

Learn how to put a bandage on a child's eye ; the best and lightest is the ordinary dressing bandage of Mr. Liebreich. Should you notice a child

holding the book close to the eyes, or contracting the eyelids in reading, or beginning to develop a squint, or complaining of a tired feeling when he has read for a little time, with pain in his head or brow, or that the letters run into each other, immediately have his sight tested.

Glasses in Childhood.—Few know how important it is, the more so in these days of close study for the intermediate and middle-class examinations, that the commencement of errors of refraction, short sight or near sight, should be detected early. An eye may be saved from future and permanent trouble by the application of suitable glasses, or the use of a properly constructed desk during study hours, the avoidance of work by gas, lamp, or candle light. Glasses are often as indispensable for the child as for the man. The child has the inherent power in the accommodative apparatus of the eye to cloak the natural defect, and he calls on this mechanism, and often unduly strains it. The result is that it suddenly breaks down, and permanent deterioration of vision results from this exhaustion of the muscular power which enables him to accommodate for near and distant objects. Proper lenses relieve all this and prevent the mischief.

Contagiousness of Eye Affections.—The con-

contagious nature of many of the diseases of the eye should not be overlooked ; this is especially important in the case of boarding-schools and families, where a number of children occupy the same sleeping apartment, using, it may be, the same towels. But, independently of actual contact, atmospheric influences help the spread of certain diseases amongst the poor ; overcrowding, neglect of cleanliness generally, much smoke, all help to disseminate inflammatory diseases having a parasitic origin.

Isolation, care as regards clothes and towels, removal of servants who are affected, may prevent the spread of the contagious troubles. More particularly does this caution apply to the form of inflammation known as *granular*, a kind of mischief very prevalent in this country, and to which the poorer classes are particularly subject. This state is frequently not recognised until the 'gravelly feel' of the lids and the discharge compel the person to seek advice ; but it is a very dangerous disease to neglect, as it may go on to disfigurement and impairment of vision ; it is highly contagious. I lay special stress on the necessity for care in regard to the contagious character of some eye affections, as I have often seen member after member of a family or the children in a school

attacked from neglect of the simple hygienic precautions above referred to.

Foreign Bodies entering the Eye.—When an eye is injured—it may be by some foreign substance striking the globe, or from a sharp body entering part of it, or some irritating substance which has been thrown into it, or particles of iron, dust, coal or lime, lodging in the eye or under the eyelid—the best thing to do is immediately to place the person in a good light and to carefully raise the eyelid and inspect the eye. Let this be done gently, not pressing on the eyeball. If a particle is resting on or imbedded in the cornea, it will thus be seen; or if the eye is cut, the nature and extent of the wound can be ascertained.

Should a piece of iron or steel have merely adhered to the eye, and a magnet be at hand, it may readily be removed by it if it be resting on the surface; also the point of a silk pocket-handkerchief or a camel's-hair brush may be used successfully. We often succeed in getting particles of grit or dust out of the eye, by drawing the upper eyelid well down over the lower, so that the latter may act as a brush and sweep the inner surface of the upper eyelid. If this does not answer, the upper eyelid should be everted, and at once the unwelcome tenant may be

evicted. This simple step is easily carried out, if only the operator is gentle and steady. The upper eyelid is drawn gently out from the globe and held firmly but lightly between the forefinger and thumb (not by the lashes); it is then easily turned on itself, inside out; or if this is difficult, the handle of a pen or a knitting-needle may be used to turn it over on. The foreign body is now easily removed. If the eye is irritable, a drop of castor oil is a very soothing application laid inside the lower lid.

Lime entering the Eye.—If any lime should unfortunately get into the eye, evert the lids at once, and wash the eye with vinegar and water (one part to seven); then anoint the eye with castor oil as directed above, and let the eye be attended to immediately. This is a most dangerous accident, and may, if not promptly attended to, and if all particles of lime are not removed, be followed by most dangerous consequences. In like manner, if an eye be burnt, drop in a little oil, and anoint the eye well with vaseline. A most soothing application is a simple fomentation of carefully strained poppy water, with extract of belladonna (a grain to the ounce), to foment the eye with.

But I take for granted that, after any serious accident, a medical man will see the case as soon

as it is possible—meantime, perhaps, the safest application is a piece of linen or lint kept constantly wet with cold water and laid on the eye; iced water, if it can be had, is very grateful. If there be much pain, swelling, or uneasiness, a few leeches applied to the temple may save time, if the patient is at a distance from a medical man. We should not be tempted to drag foreign bodies out of the eye, or persevere in fruitless attempts to remove them without advice. Many an eye has been lost by bungling and injudicious efforts to extract foreign bodies, which are thus only imbedded more deeply in the structures.

Railway Travelling.—In travelling in railway trains, persons with delicate eyes should not sit

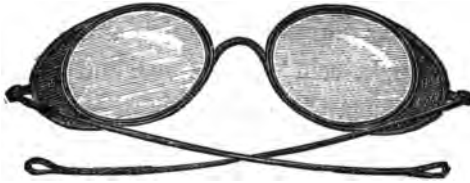


FIG. 9.—HALF-GAUZE PRESERVERS (PILLISCHER).

facing the engine, and near an open window; they may wear 'half-gauze' tinted preservers. Always when going on the Continent it is well to carry a pair of 'hollow' preservers; they are also very

useful to those who travel much on dusty roads, and in yachting. Tinted preservers, medium blue or smoke tint, will be found most useful and agreeable to the eye.

Dust, &c.—Workmen (stone-masons) suffer much from the carelessness with which they expose their eyes in dangerous occupations. For a trifle, a pair of gauze protectors can be had which are a complete protection against accident. In walking through streets in which new buildings are being erected, it is better to avoid the dust heaps and the collections of lime; never look up at these buildings, especially if the eye is tender—foreign bodies are apt to be blown into the eye in so doing. A foreign body often enters the eye and remains there a certain time without creating any irritation; then the person suffers from a ‘gravelly’ sensation and fancies that he has ‘caught cold’ in the eye, and perhaps is treated for such, when all the time the real delinquent is safely ensconced under the upper eyelid. The sudden way in which the trouble commences is often an indication. I have known foreign bodies of all kinds and various degrees of magnitude thus remain for weeks, and in some instances for months, under the upper eyelid without detection.

Some Trying Occupations.—Many occupations

are specially trying to the eye. Space would not permit me to enter into all of these. I shall best fulfil my object by referring to some general rules for the preservation of the sight in those who have a considerable amount of near work or fine work to do. Some there are who paint, sew, do crewel work, read or write a great deal, for amusement's sake. Such persons can easily relinquish an occupation which the necessity of earning their daily bread does not compel them to follow, and we can advise the abandonment of the recreation for a time as a most certain aid in the treatment. But others have to labour and toil either at painting or in some trade or business for their daily sustenance and for that of their families, to whom the relinquishment of work simply means starvation or loss of income or sacrifice of professional success. Such persons must work on, even at great risk to the sight. Much as we or they may desire it, they cannot take rest; hence they must have artificial assistance to rest the eye and enable it to do the duty demanded of it.

Over-strain.—Some eyes give way early in life from over-strain. The organ is congenitally defective; it is near-sighted or short-sighted; the shape of the globe or the accommodative mechanism of

the eye is not correct, nor has it ever been, but unconsciously, the growing child or youth has been compensating this defect by working at extra pressure the accommodative apparatus in the eye, until at last it breaks down, and the latent hypermetropia or myopia or astigmatism shows itself. With others this change is brought on by excessive

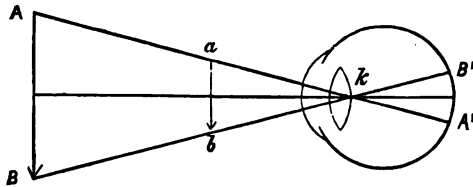


FIG. 10.

AB, object; B'A', image on retina; $a b$, reposition of image by the brain.

work, by stooping occupations, by work by artificial light, whether gas or lamp or candle light.

✓ Fig. 11 shows the change that occurs in the aqueous humour, iris, and crystalline lens, when the eye looks from a distant object to a near one. This is seen at the right-hand side where the anterior chamber is shallower, the iris more advanced, the lens deeper than at the left side. This change is principally effected by the small muscle and ligament situated just at the periphery of the iris.

Thus, when a person raises his eyes from a book which he has been reading, and looks at

a distant object, his crystalline lens alters in shape; the pupil dilates; the anterior chamber becomes deeper. Atropine, the active principle of belladonna, has the property of paralysing this accommodation, and the pupil then remains in a dilated state. This continues until it loses its effect, which it does after a few days. Surgeons instil atropine drops into the eye as a remedy in

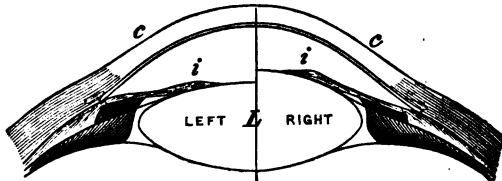


FIG. 11.—SHOWING THE ACCOMMODATIVE CHANGE IN THE EYE (DONDEES).

many diseased states, and in order to see the interior of the eye with the ophthalmoscope, and the condition of the retina. While the pupil is thus dilated, persons cannot see so well. This effect passes off with the influence of the drops. Eserine, the active principle of the Calabar bean, has the opposite effect to atropine—contracting the pupil. It is also one of our most useful therapeutic agents.

But to carelessly place belladonna or atropine habitually in the eyes to dilate the pupils, as some

ladies are said to do in order to add to their personal attractions, is a dangerous experiment. The continuous use of atropine or belladonna may injure the eye, unless it be employed for special purposes under medical advice.

Myopia (Short-sight).—To be brief and very plain with those not up in such matters, I may say, that in myopia or short-sight (fig.12) the persons affected

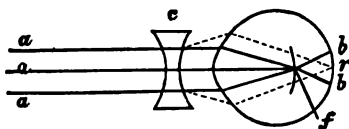


FIG. 12.

a a a, parallel rays brought to a focus *f*, some distance in front of the retina and resulting indistinct image at *b b*; *c*, biconcave lens causing divergence of the parallel rays, which throws them further back, thus bringing them to a focus at *r*.

see, as a rule, near objects—viz., read and write, but cannot see distant objects without the aid of concave glasses.

Hypermetropia.—Hypermetropia (fig. 13) is that form of sight which results from abnormalities in the shape of the globe of the eye and derangement of its accommodative mechanism, and is often naturally present in the young person, and is frequently developed by overwork with the eye. Presbyopia (a form of hypermetropia) comes on with the natural changes in the globe and the

crystalline lens in advancing years. The person affected with this sort of vision may see distant objects clearly, but cannot see to read a book at twenty inches; he must hold the book a little away from him; the near point has receded.

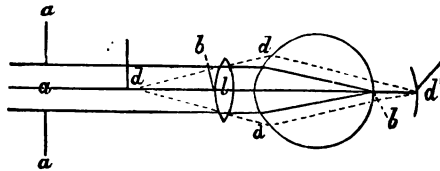


FIG. 13.

a a a, parallel rays from a distance brought to a focus by the act of accommodation on the retina at *b*; *d d d* (dotted lines) showing the divergence of the rays from a near object (a book, music, piece of work, &c.) and the consequent focus at *d'* some distance behind the retina *b*; to which they are again brought by a suitable biconvex lens *l* which converges the rays—if we remove the object a little further from the eye, and thus render the rays parallel, we bring them to a focus on the retina.

Astigmatism.—Both these simple types of abnormal vision are often complicated with a third, called astigmatism. In this, not alone is the eye in its antero-posterior diameter lengthened or shortened, and the accommodative apparatus deranged, but the meridians of the globe are at fault, and vertical and horizontal lines are not seen as they ought to be. Vertical strokes are seen more distinctly than the horizontal, or *vice versâ*; for example, in a circle such as fig. 14, the strokes from the figures XII. I. II. will be seen more distinctly than from IV. V. VI., or

those from XII. to VI. than from IX. to III. The defect of astigmatism is perhaps most obvious in reading music—this follows, as we might anticipate, from the nature of the type. And this frequently is the defect in vision that we find the most troublesome to treat, and which the ordinary spherical lenses in spectacles

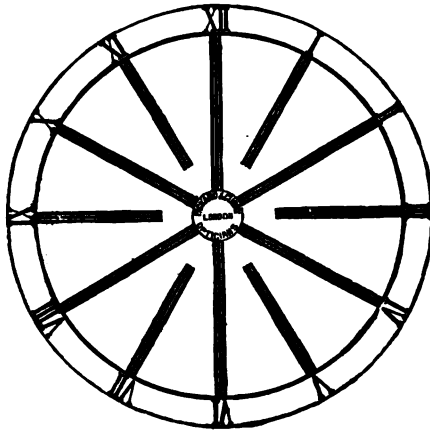
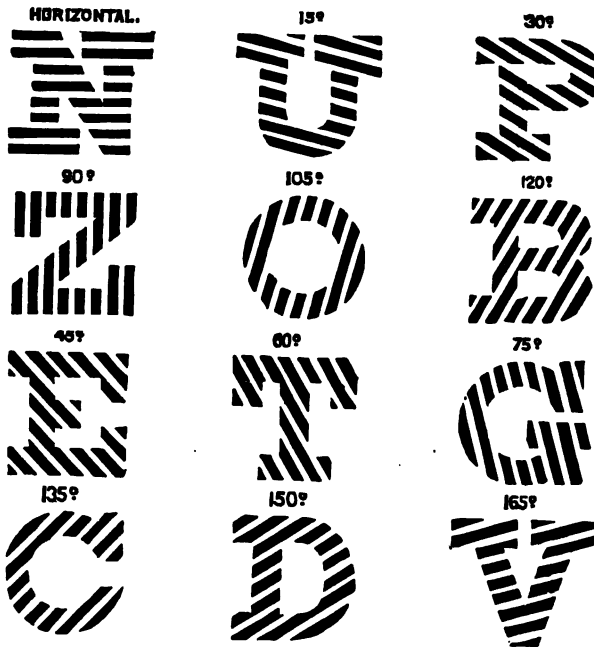


FIG. 14.—ASTIGMATIC CIRCLE (PICKARD AND CURRY).

will not relieve. We have to use cylindrical glasses to correct the meridional deficiency. Headache, brow-ache, tired sensation in the eye, 'swimming of the eyes,' running of the letters and words together, are the common accompaniments of this state. Lenses (combination) to correct both the spherical aberration—the myopia or hyper-

metropia—and astigmatism are necessary. Young people suffering from these symptoms may suspect the cause of their troubles. The more the astigmatism increases, the more difficult as a rule is it to completely correct it. The earlier it is seen to the better.



DR. PRAY'S STRIPED LETTERS FOR TESTING ASTIGMATISM.

The stripes will be seen with different degrees of distinctness, varying according to the extent of the astigmatism. The direction of the chief meridians, whether vertical, horizontal, or diagonal, is known by the relative distinctness with which the stripes are seen.

Glasses, prejudice against.—The absurd prejudice that some people have against the use of glasses, influenced by their regard for their personal appearance, is indulged in at the ultimate cost of good sight—or perhaps loss of useful vision. The earlier these refractive troubles of the eye are attended to, the less powerful the lens that has to be worn. This leaves a margin for future changes. But it is in view of the abnormal deviation from the healthy eye which must come as we advance in life that the judicious use of glasses is of such importance, preventing, as it does, congestive states of the eye, which tend to morbid changes, ending, it may be, in blindness, glaucoma, or cataract.

TEST TYPES.

READING.

Broadly speaking, the hypermetropic person, who is advancing in years, holds the type (No. 6) at a distance from the eye in order to see it, until a convex glass is applied. The myopic person holds it close to the eye.

These test types of Messrs. Pickard and Curry correspond to Jaeger's—No. 1 should be read by the normal eye at 20 inches. It is well, in trying the vision, to **place** a piece of card before either

eye, so as to test each separately. The number which can be read clearly at 20 inches is a rough index to the glass required. *Special glasses are required for music.*

No. 1.—Diamond.

For the three ensuing days I was in a state of anxiety to know what reception my letter might meet with; but in the meantime was frequently solicited by my wife to submit to any conditions rather than remain here

No. 2.—Pearl.

to comfort, to strengthen her, to receive her last wishes, and teach her soul the way to heaven. Another account came—she was expiring, and yet I was debarred the small

No. 4.—Minion.

think of the rest of my family, and attempt to save my own life, which was every day declining for want of necessaries and wholesome air.

No. 6.—Bourgeois.

sick almost to fainting, very sick, my fellow-prisoner—yet that shall never inspire me with vengeance. I am now

No. 8.—Small Pica.

servants were insolent and suspicious; but he

No. 10.—Pica.

to his attorney, not to him. He observed,

No. 12.—Great Primer.

towards an abode that looks

14.—Double Pica.

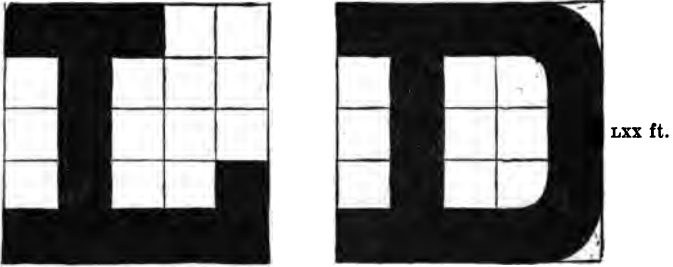
Just as I spoke, my



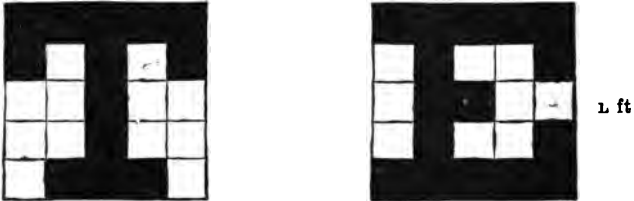
Ma-ny tears have I been weeping, On the snow they fall like

TEST TYPES (Snellen's).
FOR DISTANCE.

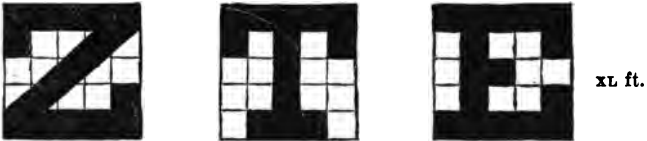
D = 24



D = 18



D = 12



D = 9



D = 6



The numbers at the right-hand side represent the distances at which the letters should be read.

The preceding letters may be placed at 20 feet from the eye, and the vision marked according to the letters read, *i.e.*, $\frac{20}{20}$, $\frac{20}{40}$, &c.

✓ **Cataract and Glaucoma in advanced life.**—Glaucoma is an affection of the globe, sometimes consequent upon injuries, but more frequently coming on from constitutional causes and advancing years. In this affection the filtrating canals of the eye, that relieve both the aqueous and vitreous humours, become obstructed. Congestion and over-secretion into the chambers of the eye are the consequences. Periodical blindness or decrease in vision, a sensation as of a fog or a piece of crape coming suddenly before the sight, a rainbow or a halo seen round the candle, flashes of light passing through the eye, more rarely pain, mark its advent.

In cataract the crystalline lens of the eye becomes opaque, and after a time is visible as a cloud through the pupil; the fog before the patient's eye is constant, and he often sees better in the dusk or in a subdued light (when the pupil is larger) than in sunlight. But as both diseases attack persons advanced in life, and as both come on insidiously, it is most important that the glaucomatous tendency should be discovered, as the hope of

its prevention and cure depends on an early operation before the disease advances, when any operative step may be useless. When cataract occurs in old people, we must wait until it is mature to operate, to ensure a fair prospect of success. Hence the vital importance of distinguishing the one affection from the other. The extreme rapidity with which the glaucoma often advances to complete incurable blindness makes this injunction all the more necessary. The operation for its relief is a very simple one, more so than that for the cure of cataract, and attended with little or no risk to the eye.

On Glasses generally.—Spectacles we might look on as doing for an eye what a splint does for an injured leg, they give it rest. I can hardly exaggerate the importance of the proper and scientific adjustment of suitable lenses to the eye; not chosen at haphazard and at random; not those picked up promiscuously, which appear to magnify the letters or work; not worn when there is an irritated and congested retina that requires complete and total rest; but glasses cautiously and critically adjusted—remembering that an eye cannot be treated worse than the foot or hand, for which we have accurate proportional measurements taken before a boot or glove is worn. We

are dealing with an infinitely more delicate organ, with an exquisitely sensitive mechanism, and a retina on which this mechanism acts for good or ill, just as we treat it well or badly. Spectacles must be worn tentatively at first, not kept on when the eyes feel hot or tired, after the letters get blurred, or if any pain is felt in the eyes. Near work should then be laid aside, and the eyes rested for a time.

Tinted Glasses.—Sunlight, with its intense heat and yellow glare, is peculiarly injurious to the eye. The comfortable soft felt hats lately worn, and the broad-brimmed ecclesiastical covering, protect the eye from the glare of the sun. It is curious how *fashion* compels both men and women to reject every warning of nature and adopt some ridiculous custom. The girl by the sea-side, or in her garden at work, free from fashion's thralldom, enjoys her ramble or her amateur labour well protected by her broad-leafed straw hat. But when she appears in the street it must be cast aside, and the parasol or veil, which latter has its own disadvantages, takes its place. Why it should be so, save that fashion wills it, there is no reason. For the days of bright sunlight and glare, both men and women should wear other head-gear than chimney pots,

turbans, or many other of the various fanciful forms now adopted. Tinted glasses both as spectacles and preservers are often very grateful to the eyes. Medium smoke tint is perhaps the best, or any of the varying shades of blue. In working by artificial light, and in the sun's glare, such protectors are of great benefit.

I wish to sum up these few hints about glasses by saying that, as there is no more difficult and tedious part of the oculist's work than the prescribing of glasses and arriving at the right kind, as in many difficult cases of astigmatism, &c., so there is nothing so vital to the welfare and safety of an eye as the choice of a lens; and, speaking generally, in no way are eyes more frequently injured than by the injudicious selection of glasses.

Stooping.—Stooping occupations are injurious to many eyes. The organ becomes congested, and if this is made a habit, as in gardening for example, the effect is most injurious. Stooping constantly over low desks also is not good. The desk should be made so as to be nearly level with the eye, or a small desk constructed to fit on the office desk, and the book or paper placed on it. Reading in bed is not good. Reading by defective light or by fire-light is very bad for the eye.

The person should sit, in reading or writing, so that the light may fall on the book or desk, not on the face. He should sit with his back to the sunlight.

It is better at night to have a good argand lamp behind the reader, and the book should be placed on a level with the eye.

Office Work.—In offices green shades over the lamps will be found pleasant to the eye. Provision should be made for the proper ventilation of all offices, for reasons independent of the sight, especially where much gas is consumed. The desk should be so constructed that there need be no prolonged stooping over it.

Electric Light Effects on the Eye.—Though symptoms simulating 'snow-blindness' have been observed in some few instances in the *employés* in electric-light works, it is not fair to argue from this fact that,



FIG. 15.

Represents a pretty lamp for reading purposes, with green shade, made by Mr. Pillischer, optician, New Bond Street. It burns oil. It is not heating to the head or face.

when properly subdued and placed, the incandescent electric light is more harmful to the sight than gas-light. The incandescent electric light has two great advantages: (a) it does not give out more than half the heat of gas; (b) it does not flicker. There is, of course, the obvious superiority of electric lighting over gas for domestic purposes—viz. the non-consumption of oxygen and absence of carbonic acid. This is, however, a matter affecting the general health rather than the sight. I have known the pale looks of an entire family vanish when the dining-room in which they sat each night was carefully ventilated and exit tubes for the heated air were constructed. The re-breathing of respired air is injurious to health. How much more so if the re-breathed air is loaded with the products of combustion? Petroleum does not dry the eyes as much as gas. Candles of all kinds are still more heat-producing than gas. The essentials we require in a good light for the eye are (1) absence of heating rays, (2) sufficient intensity, (3) steadiness in the light, (4) that it must not consume the oxygen of the air we breathe, (5) its easy control and regulation. While it is premature yet to pronounce an opinion on the electric light for reading or other purposes, still, having seen the

beautiful manner in which Mr. Robert Hammond's house at Highgate is lighted by means of electricity, and the perfection of the lights,



FIG. 17.—THE BURNER TO SAME.
(From R. Hammond.)

their illuminating power and steadiness of control, I feel that the electric light, if not in every particular, can in most of the above-mentioned



FIG. 16.—ELECTRIC READING
LAMP, WITH GLOBE.
(From R. Hammond.)

essentials be made a safer light for the eye and health generally than gas.¹

I figure through the kindness of Mr. Hammond one of his reading lamps, with the globe, which can be had of any tint.

Eye-shades.—The wearing of shades over the eye when it is inflamed requires a word of advice.



FIG. 18.
AMERICAN EYE-SHADE.

Many of these 'eye-shades' do not cover both eyes; better that they should protect both (as a rule), and hence provide for the great sympathy that exists between the eyes. So also they should be stiff enough to stand well out from the eye, and

not fall on it to collect discharge, and perhaps permit some of the colouring matter of the shade to get into the eye, and also to heat the eye. A capital shade can be made out of stiff brown card or paper (fig. 19).

Dipping the Eyes in Cold Water.—Many persons

¹ Were the glass of the smaller globe tinted a pale blue or green, this would prevent much of the unpleasant effect on the retina when the incandescent light is looked at for any time.

fancy that dipping the eyes in cold water strengthens them. The immediate bracing and astringent effect of the water is deceptive. The blood-vessels become secondarily congested, and have a tendency to remain so. It is a practice to be condemned. But douches which play in a very fine spray on the eyes have a different effect. They are constructed on the syphon principle, and the spray may be

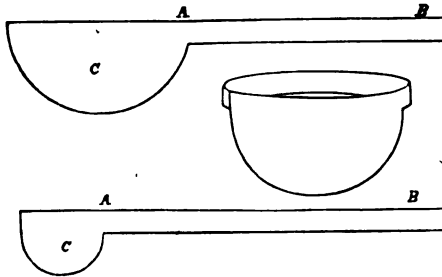


FIG. 19.—STIFF GLAZED BROWN PAPER SHADE, CUT OUT OF ONE PIECE, TO COVER BOTH EYES OR ONE.

A B to carry round the head and to pin to *C*, which covers the eyes.

allowed to play on the closed eyelids for a few minutes night and morning. A small piece of waterproof is placed underneath the neck, and the patient sits erect (fig. 20).

Colour Blindness.—There is not space in a work of this nature to enter into the nature and cause of colour blindness. This will be found discussed in any work on physiology. Briefly, and

for practical purposes, we may look on it as a congenital defect or deficiency in certain retinal elements which usually respond to the stimulus of a particular colour of the spectrum. A sombre drab colour Dr. Dalton was not able to distinguish



FIG. 20.—SYPHON EYE-DOUCHE OF PILLISCHER.

from a flaming red, when he purchased and appeared in a pair of scarlet breeches quite unconscious of his error. In these days of railway travelling and the dependence of the lives of railway passengers on correct and rapid signalling, the importance of detecting this defect is obvious. The colour blindness of some persons is shown in the absurdity of their contrasts in matters of dress. Persons can, in a

ready way, be tested for colour blindness by placing before them some skeins of Berlin wool of various colours, and making them pick quickly out the various shades of green, and red or pink, &c.

Tobacco, its Effect on the Eye.—There can no longer be any doubt as to the injurious effects of

tobacco on the eyes in a certain proportion of cases. I have often seen the eye either become permanently blind or threatened with blindness in hard smokers. I have likewise frequently seen all the premonitory symptoms disappear on the total relinquishment of the habit. Such patients go on from bad to worse when the habit is persisted in.

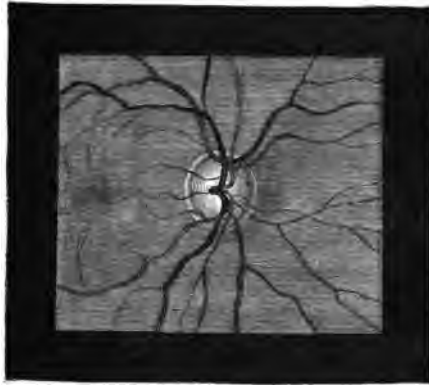


FIG. 21.—OPTIC NERVE OF HEALTH.

These drawings show (fig. 21) the optic nerve of a healthy eye, and (fig. 22) that of a patient afflicted with tobacco blindness. Unfortunately in its final stages it is a disease for which medical skill or art can do but little. The person threatened sees at first a little dimly towards the latter part of the day, then

specks¹ appear before the eyes, or a sense of fog; the vision becomes more affected, large type is seen only with difficulty, the ordinary occupations have to be relinquished, perhaps other symptoms become

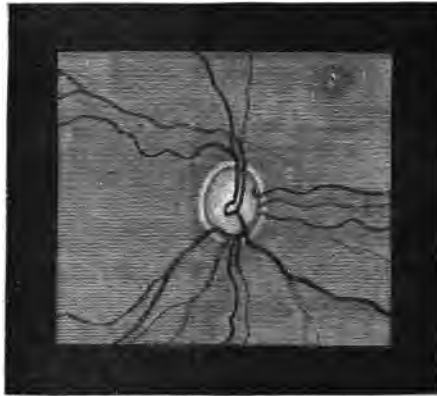


FIG. 22.—OPTIC NERVE OF PATIENT SUFFERING FROM ALCOHOLIC AND TOBACCO AMBLYOPIA.

manifest, the person sees part of an object only, or a fixed dark spot appears between him and an

¹ The floating particles seen on looking at a white surface or at the clear sky are quite different from the dark specks here referred to. The former, or '*muscæ volitantes*,' occur after fatigue, when the stomach is disarranged, and in various states of the nervous system. These are, as a rule, purely physiological, and have not the important significance of the objective bodies seen in organic changes of the vitreous humour of the eye, and which are visible with the ophthalmoscope.

object. When we examine the retina with the ophthalmoscope,¹ manifest changes have occurred in the nervous structure; it is atrophied, the blood-vessels are altered, and so a sort of blanching of the nerve and retina has occurred.

Alcohol.—Much the same changes, accompanied by nearly similar symptoms, differing only in the time of day that the dimness is felt, the fact of one or both eyes being attacked at first, the rapidity with which the disease advances, attend the inordinate use of alcohol. But as many inveterate smokers are chronic tipplers, we frequently find that the symptoms of tobacco and alcoholic amblyopia are combined. It appears from some late statistics that the effects of tobacco, when it is taken in excess, are more apt to be developed rapidly than when alcohol is also used. Hence eye troubles are found more frequently in inveterate smokers who do not take any alcohol than in those who take some. The practical hint deducible from the statement of these facts is easily given. If we wish to

¹ An instrument in common use, which enables the observer to see through the pupil into the interior of the globe, and through the transparent media; he can thus examine the retinal tunic and its blood-vessels, and detect any morbid condition of the humours or vessels, or of the optic nerve and retina.

avoid any risk of alcoholic or tobacco blindness, we must avoid excess of both these luxuries. Should the eye unfortunately be threatened from either, we must relinquish the use of both *in toto*.

CHAPTER III.

THE HEARING.

THE ear is too intricate an organ to attempt any brief description of. Fig. 23 merely gives the

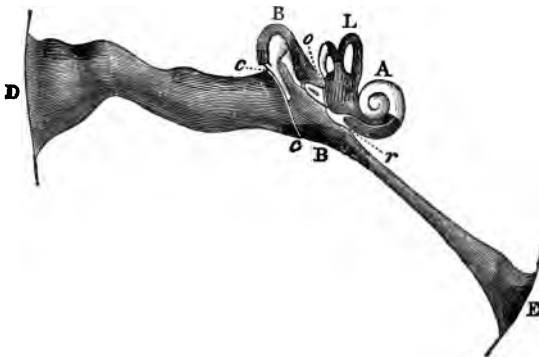


FIG. 23.—THE AUDITORY PASSAGE, WITH THE MIDDLE AND INTERNAL EAR AND EUSTACHIAN TUBE (BERNSTEIN).

D, external ear passage ; c, membrane ; B B, middle ear ; o r, openings into the internal ear ; L A, internal ear ; L, labyrinth ; A, cochlea ; E, Eustachian tube.

relative position of the external ear, the external passage, the tympanum or drum, the tympanic cavity or middle ear, the internal ear, the Eusta-

chian tube or passage leading to the throat. I may just notice a few points of importance. First, it is well to remember the direct continuity of the skin of the external ear with that of the passage leading into the drumhead, or membrane; hence the readiness with which affections spread from the external ear and passage to the tympanic cavity.

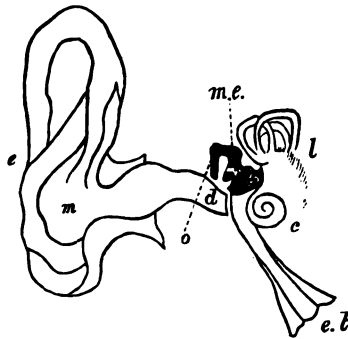


FIG. 24.—THE EAR.

e., external ear; *m.*, meatus or passage into drumhead or membrane (*d.*) closing the middle ear (*m.e.*) and ossicles (*o.*); *l.*, labyrinth; *e.t.*, Eustachian tube leading from the back of the nose and the throat to the ear.

Secondly, the short distance from the external aperture to the drum cavity and the conical shape of the passage (first contracting and then widening out), as also its close contiguity to the brain in children. These facts teach some important lessons. Skin affections of the external ear should not be neglected, more especially that known as

eczema (ordinarily recognised as a discharge with scab), for these may pass rapidly from the external passage to the membrane of the middle ear and cause catarrhal inflammation of both these parts, and lead to chronic discharge, or perhaps perforation of the membrane.

Discharge from the Ear.—He who talks of ‘meddling’ with an ear discharge talks ignorantly. Many a valuable life has been lost from the neglect of a discharge from the ear. Discharge leads to polypus in the passage, or in the drum cavity, or more dangerous still, if from the middle ear, to perforation of the drum membrane. It may attend destruction of the small bones of the ear necessary for hearing. It is a symptom often of abscess in the external passage and recurrent boils, as well as of disease in the adjoining bone. It leads to inflammation, especially in children, of the overlying brain, abscess, and death from absorption or entrance of the pus into the blood, and general blood-poisoning and convulsions. Great cleanliness, then, is the first essential in treating an ear from which there is a discharge. But this proximity of the drum to the brain teaches another lesson—that all ignorant interference with the passage is to be deprecated; I mean the use of pins or pieces of rolled paper, or

ends of towels, &c., to poke out wax or cleanse the passage. Many have been the serious results I have seen follow from such imprudent practices.

Forcible Syringing.—So also we are taught that forcible syringing, unless when necessitated for the removal of foreign bodies or wax, is most dangerous, the stream of water being then sent directly on to

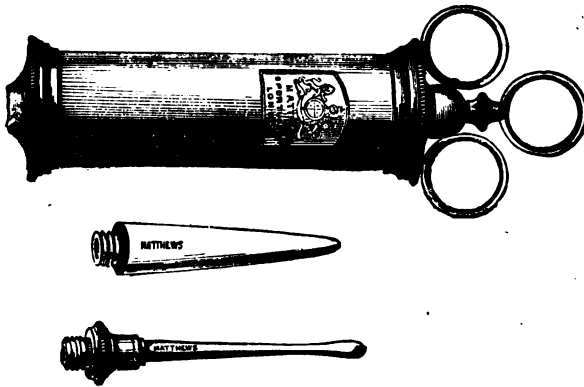


FIG. 25.—EAR SYRINGE.

the delicate and sensitive drum. All that an uneducated person should do is to *wash out* the ear, and always to do this gently. The little syringe before referred to, or a small syphon douche, is sufficient for this purpose. The usual syringes sold are, many of them, useless for effective syringing. A proper brass syringe, the nozzle of which

screws off, and which holds about two ounces, should be got.

If this cannot be afforded, a two-ounce green bag syringe answers very well. The lobe of the ear should be held well back when the syringe is used, and a steady but gentle stream directed into the passage.

Boxing and Pulling the Ear.—The close proximity of the drum cavity to the brain teaches another lesson, viz.—how dangerous is the habit of boxing the ears of children. I read not long since of an inquest on a lad who died from the effects of a box on the ear. The same remark applies to rude pulling of the ear. Deafness, if not some worse consequence, may follow either practice.

Foreign Bodies in the Ear-passage.—Children constantly put foreign bodies in the ear—such as pieces of chalk, glass beads, shells, stones, slate pencil—and these pass, if at all pushed at, on beyond the narrow portion of the passage and get imprisoned inside. The shape of the passage gives us a most valuable lesson. I can only here impress on all parents and friends to permit none but the gentlest efforts at extraction of any foreign body. An experience derived from dealing with almost every conceivable foreign visitor in the

external passage, and the experience of other aural surgeons, makes it imperative to give the most emphatic advice to trust to syringing, and syringing alone, for removal. Even if discouraged, and that we have to wait for days or weeks, still trust to syringing. There are some rare exceptions, but these only prove the general rule which should be followed if we wish to avoid causing irreparable



FIG. 26.—SAVOBY AND MOORE'S EAR DOUCHE.

mischievous to an ear, or perhaps endangering life. Some cobbler's wax, or glue, or cement on the point of a fine piece of wire or stick, will at times safely withdraw a tenant otherwise not easy to dislodge. If an insect get into the ear-passage, pour in a little warm oil and soda, and use gentle syringing.

Poulticing the Ear.—The parts about the ex-

ternal ear are very vascular, hence we should avoid large poultices ; they injure the ear as they do the eye, producing chronic relaxation and congestion of the vessels and promoting the formation of fungi : a small conical poultice—linseed in muslin—just fitting into the external passage is the best ; it can be frequently changed. Warm fomentations of poppy water with chamomile, or laudanum water, steaming the ear over a jug with warm water, a few leeches applied to the bone behind the ear, or one placed with a leech-glass just in the outside of the passage, or immediately in front of the ear—all are efficient and simple means of relieving pain, or if such fail, the application of a little blistering fluid behind the ear to create a mild blister may prove of benefit. Any abscess or boil should be opened early. It is the contagious nature of the matter contained in the boil which brings recurrence of the inflammation and the formation of several boils.

Wax in the External Ear-passage.—The external passage frequently becomes clogged with wax. It becomes impacted on the drumhead. Simple syringing, properly directed, is all, as a rule, that is required for its removal. Some alkali (soda) with glycerine, dropped into the ear the night

before, will assist in the removal, by softening the wax. If deafness comes on rather suddenly without pain, and there is some slight singing noise, this cause may be suspected. Should ordinary syringing not succeed, then the wax should be removed by some skilled person, otherwise it may remain and cause permanent injury to the hearing, and perhaps give rise to inflammation. It becomes mixed with old dead skin and secretion, and frequently causes serious mischief.

Dropping Oil into the Ear.—The habit of dropping oil into the ear is a most injurious practice.

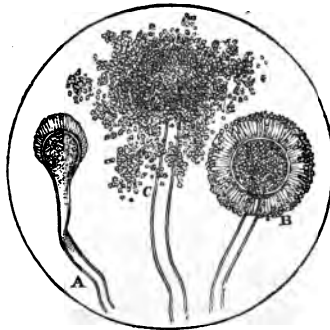


FIG. 27.—THE FUNGUS OR ASPERGILLUS OF THE HUMAN EAR.
A B, sporangia or sporeheads of two varieties of aspergillus (after Burnett).

The oil is decomposed and fatty acids are formed, which, with the animal matter in the passage, cover the drum with an amalgam of skin, fungi,

and other secretions. The aspergillus or ear fungus is thus frequently formed, and much mischief is developed in the passage. Glycerine is preferable, as it does not decompose into these fatty acids. But it is a meaningless and hurtful practice to continue for a length of time dropping glycerine into the ear.

Perforation of the Membrane.—The membrane of the ear, from various causes, suffers from perforation; one common one is, the inflammation spreading to the ear cavity from the throat, during scarlatina; these apertures are of various sizes. They are not necessarily attended by deafness; this only occurs if other parts are implicated. These perforations can be closed by artificial membranes, and the hearing may be greatly benefited by these aids. But all ears suffering from perforation of the drum should be kept scrupulously clean, and the perforation encouraged to heal by appropriate treatment, even if it cannot be closed. Then an artificial drum may be worn. The drumhead is by no means essential to hearing. I have frequently seen persons without any apparent inconvenience in the way of deafness, and whose hearing power was very good, yet who had literally no membranes. If we shut our mouth firmly, hold the nose tightly,

and blow through the ears (as if blowing a trumpet), we can generally detect a perforation by the sound of the air passing through the cavity of the tympanum outwards.

Noises in the Ears (Tinnitus aurium).—A slight 'singing' in the ear may be caused by wax. The smallest foreign particle resting on the drum-head may cause tinnitus. Affections of the middle and the internal ear are indicated by deafness, often insidiously increasing, and are accompanied by noises of all kinds, from the singing of a kettle to the roaring of the sea. Very often they are the consequences of temporary closure of the Eustachian tubes (leading from the upper part of the throat to the ear). At times these noises proceed from nervous disorders. Over-worry, mental strain, exhaustion producing nerve-tire, will cause noises. A trip to Switzerland or Scotland, a sea voyage, a pleasant holiday will frequently relieve these. Sometimes there is attendant upon the noises, giddiness or sickness of the stomach, difficulty of hearing several voices in conversation, the power of hearing better in railway carriages; such cases must be brought under the notice of the physician, the earlier the better, if there is to be any hope of doing service.

Throat Deafness.—Throat deafness, so called, is a very common form of deafness associated with relaxed throat, swollen or enlarged tonsils, growths above the tonsils. The Eustachian tube that is at the back of the nose, and which leads up to the middle ear, acting as a valve to ventilate it, becomes closed, and is blocked up with mucus, or the walls of the tube collapse and fall together, and deafness is a result. The longer this state is permitted to exist, the more likelihood of permanent mischief following. If now the person closes his mouth as before described, and holds his nose and blows through the ear, he will find that no air enters through the tube of the affected side; he cannot inflate the drum of the deaf ear. There are simple means of curing this form of deafness in its early stages. Attention to the throat is, however, essential; the patient can lie on his back, take a little cold alum water with borate of soda (borax) into his mouth (20 grains of each to the ounce), and gargle the throat well, forcing the liquid up behind the back of the soft palate. Gargles, lozenges of eucalyptus, chlorate of potash, kino, guaiacum, &c., are useful.

Snoring at night in Childhood.—In children hypertrophied tonsils should be removed and the

space behind the soft palate examined for growths, and by treatment, constitutional, hygienic, or otherwise, the troublesome respiration, the snoring at night, and the bad pronunciation may be got rid of. Such growths behind the soft palate have frequently to be removed by operation. In short, the intimate connection between the throat and the ear is not to be lost sight of, and the dependence of deafness on morbid conditions of the throat should be remembered. Early attention to a child's throat would save many a case from future incurable deafness.

General Hints: wearing Wool, Sea-bathing, &c.—

I will give a few other general directions and cautions before dismissing this subject of hearing. Do not habitually wear cotton-wool in the ears; it is often forgotten in the passage, wax may form both behind and in front of it; should there be any discharge, it saturates the wool, which, if it be left for any time in the ear, is likely to cause fœtor. Particles of wool are apt to find their way into the middle ear. It does no good, and the only time it should be worn is when, for therapeutical purposes, it is employed as a means of keeping applications in the passage, or for protecting the drum when threatened with inflammation, or perhaps, immediately on going out into a cold wind

after the removal of wax. But it is a very foolish and risky habit to encourage. Soft rubber ear protectors (Dr. Ward Cousins) to wear in the passage can be obtained. I have had them made of solid rubber of the shape shown in the diagram, and they are hardly

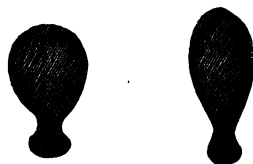


FIG. 28.—EAR PROTECTOR.¹

noticeable. If suffering from deafness or any ear affection, be cautious of sea-bathing, but more especially the practice of diving on the head. Bathing in this manner is a fruitful source of deafness. If after bathing there is a deafness and that an uncomfortable feeling is felt, as if water were in the ear, or there is a noise in it, the tube leading to the ear should be attended to at once. It should not be neglected for any length of time, or changes that are irremediable may ensue.

Discharge from the Ear in young Children.—Do not neglect the early symptoms of discharge from the ear and deafness in very young children. The little sufferer can only indicate pain by carrying the hand to the ear and crying, but the flushed

¹ Messrs. Maw, 7 Aldersgate Street, have just made for me small ivory protectors which fit admirably in the external ear and are little noticeable.

and distinguished positions. Much might be written on this subject.

I shall briefly summarise some hints that may be of service. Be kind and patient with children suffering from or threatened with deafmutism ; be careful by signs and by articulate sounds and lip movements to attract the attention to objects ; associate their ideas with animate and inanimate objects, pictures, models, &c. ; teach them privately at first, as far as is possible, if a proper and special school be not convenient. Companionship is indispensable ; it enlivens the spirits, prevents moroseness, helps the cultivation of ideas, brings the child into constant contact with those who hear ; also, it is of great importance to have the ear carefully examined, the power of discriminating various notes tested, and the ear practised with these, while the application of some mechanical aid, as an artificial membrane, may be of great service. The moral training of deaf-mutes is of special importance. While considerable kindness is shown them, they must be made to know the difference between right and wrong ; their habits of order and discipline should be carefully attended to. Foolish indulgence is as bad as excess of severity. Any words uttered before a child has become deaf must

pronounced for her. These experiments were carefully carried out, and as often as possible the child was made to repeat distinctly words and sentences. In this manner not only was the hardness of hearing lessened, but, after several months, the child could even speak somewhat distinctly; at any rate, her speech was fairly intelligible. Simultaneously the whole nature of the child, who was formerly absolutely unmanageable, was changed, and she became more docile. At last her animal-like wildness, which showed itself in the expression of her face as well as in the continuous squirrel-like mobility of her whole body, disappeared. Without the local treatment, and without the great and judicious care of her friends, the child would certainly soon have had to be considered a deaf-mute.

Schmalz¹ also relates that a child five years old had, after scarlatina, a purulent discharge from both ears two years before it came under treatment, and could only speak a few words very indistinctly. By the treatment, the hearing-power of the child was so much improved that, without instruction, it learned to speak very well.

Dr. Alt² recently reported the cure of a case of acquired deafmutism. A boy, who was born with a cleft palate, and who had heard and spoken well, became at the age of two and a half years, in consequence of scarlatina, so hard of hearing in both ears that he lost his speech, and could only be communicated with

¹ *Ueber die Taubst.*, p. 105a.

² *Archiv für Augen- und Ohrenheilk.*, vol. vii. p. 211.

by signs. On examination of the boy when seven years old, there was found great swelling of the mucous membrane of the nose and of the naso-pharyngeal cavity, and a foul-smelling discharge from both ears. After the local treatment of the lining membrane of the tympanic cavity and of the pharynx had improved the hearing on both sides, staphyloraphy was also performed. At the end of the treatment the boy heard a medium voice on the left at a distance of twenty-five feet, and on the right of twenty feet. He has become very talkative, and attends an ordinary school.

As a rule, it may be assumed that deafness occurring up to seven years of age will have dumbness as its consequence, while speech is retained if the child be older than that. Still there are cases on record in which children of fourteen and even fifteen years of age have lost their speech by becoming deaf. In such cases, it must, however, always remain doubtful whether deafness alone was the cause of the deafmutism.—*Cassells' Translation of Hartmann.*

Mr. Assur Moses, of Fitzroy Square, London, will gladly give any information needed as to the working of, and regulations for admission to, the School for Oral Instruction of the Deaf and Dumb.

Artificial Aids: the Dentaphone, Audiphone, &c.—I have tried every kind of audiphone and dentaphone. Rhodes' audiphone is that best known. Dr. J. Patterson Cassells, the late distinguished aurist,

of Glasgow, made numerous trials with all these artificial aids. His experience was somewhat like my own. They are followed by unsatisfactory results in many cases, but there is no doubt that we occasionally meet with perfectly deaf people who are improved and who can carry on conversation by their means. Then they are as conspicuous, as a rule, as ear-



FIG. 29.—THE AUDIPHONE APPLIED.

trumpets, and it is questionable if they are much better. However, they are well worth the trial of any deaf person. A deaf person may fairly try

the effects of the audiphone by taking an ordinary Japanese hand screen, such as generally rests on the mantelpiece. The edge is placed against the teeth; by experiment, the best tooth to apply it to can be ascertained. The fan or screen is then given a curved shape by drawing its handle towards the chest.

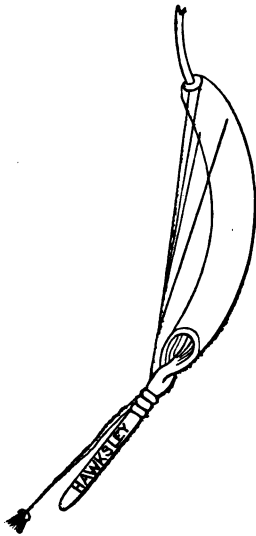


FIG. 30.—AUDIPHONE.

If there be artificial teeth, the edge or ivory clip of the audiphone must touch a natural tooth. Some one must then, by experiment, try the effect on the deaf person—speaking in different tones, striking notes on the piano, or by singing. Then a portion of a book is to be read aloud, and the same extract read from day to day, so as to test the improvement in hearing. The audiphone requires patience and practice. *The dentaphone* is not so well known in this country.

Yet I have made some very successful experiments with it. Fig. 31 represents the appliance. The clip is placed against the teeth of the deaf person,

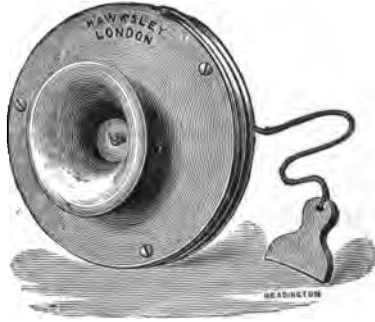


FIG. 31.—DENTAPHONE.



FIG. 32.—USEFUL KIND OF EAR-TRUMPET.

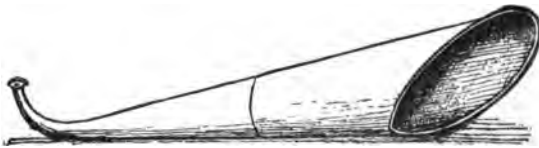


FIG. 33.—CONICAL FOLDING EAR TRUMPET.

and the small circular disc is held towards the speaker.

There is a great variety of ear-trumpets. I prefer the folding conical form for acoustic purposes. It is easily carried in the pocket. Fig. 34 shows a small trumpet of Prof. Politzer, of Vienna,



FIG. 34.

to be worn *in the ear*. It is made of dentist's flesh-coloured vulcanite, and is certainly of use to some.

Fig. 35 represents an ear-trumpet of Messrs. Krohne & Sesemann. The sound is considerably



FIG. 35.

magnified by the closed shell at the end. I have not sufficient experience of this trumpet to speak confidently of it. But it appears to me one of the best I have ever tried.

CHAPTER IV.

THE VOICE.

Its Production.

Production of the Voice.—My object being simply to give a few brief hints on the preservation of the voice, I have to omit matters of great interest to the student of music, especially those physiological facts connected with voice production and musical notes, &c.¹ I must, however, briefly summarise a few facts in connection with the production of the voice necessary to be remembered in considering its preservation. The parts that enter into the production of the voice are, the lungs, the windpipe (trachea), the larynx, the nasal cavities, the oral cavity and the lips.

¹ Mr. Emile Behnke has published a most readable and interesting little work on 'The Mechanism of the Human Voice' (J. Curwen & Sons, London), which will be found of use by all students of music.

The recent work of Mr. Lennox Browne and Mr. Behnke, 'Voice, Song, Speech,' may be consulted on this subject with advantage.

But outside the parts immediately concerned in its production are others which preside over and regulate the performance of the proper functions of the various organs. Thus the nervous system, both brain and spinal cord, in controlling and maintaining the wonderful co-ordinating mechan-

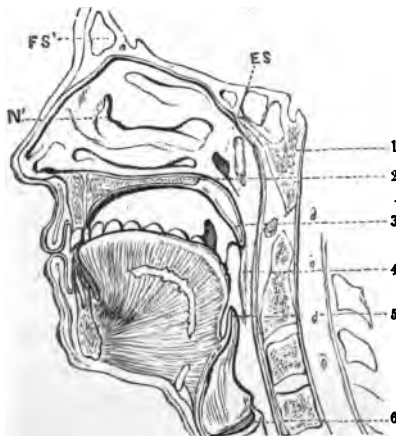


FIG. 36.

F.S., frontal sinus (cavities in the bone over each orbit); N., nose and nasal cavities; E.S., orifice of the Eustachian tube leading to the ear; 1, Sphenoidal bone at base of skull; 2, hard palate; 3, uvula; 4, tongue and passage to stomach; 5, epiglottis—protecting the larynx; 6, opening of larynx.

ism which is brought into play in speech, must preserve a healthful relationship with all the parts concerned in speech production. No more marvellous example of automatic and co-ordinating action is to be found in the human body than we

have exemplified in the production of the voice, from the simplest articulation of sound to the highest pitch of perfection attained by a Patti or Sims Reeves.

Effects of Respiration on the Voice.—The movement of the lungs in respiration; the regulation of the inspiratory and expiratory acts; the maintenance of the due proportion of air contained in the lungs, or given out in speech and singing; the filling of this natural bellows with air, and its freedom during inflation, as also the direction and force of the current driven out; all these associated actions are completed and perfected in the production of the human voice. The different notes, the tones and semitones of the human musical instrument, depend also on the patency of the air passages, the alteration in the shape of the vocal apparatus, and the instantaneous changes in the mouth, palate, and larynx, simultaneously taking place in the formation of vowels and consonants.

On a healthful relationship between all these organs, and on the proper discharge of their functions, the faculty of speech and the power of singing depends. To comprehend this we should understand the mode of breathing by the lungs in

its effects on the voice. It is clearly proved that for the proper education of the singing voice the pupil should be taught to expand the chest downwards and laterally, enlarging the ribs and separating them from below upwards; he then, in the most perfect manner, fills his lungs with a reserve of air necessary for a prolonged effort.

Effects of Fashion on the Chest.—A woman breathes rather with the upper and side portion of the chest, but she too has to learn to fill in the lower portion of the lungs thoroughly and to modify and control the *expiratory* movement—a most important part in the singing art. But all this means free space for the ribs below or near the waist. The lungs occupy the thorax, which is the shape of a truncated cone, narrow above and broad below. (Fig. 60.)

Unfortunately, by the modern fashions, tight lacing and narrow waists, all this is reversed, the natural cone is inverted and the lungs at their bases are compressed into the smallest possible space, while abdominal respiration is also impeded by the pushing downwards and the compression of the abdominal viscera.

Young women little know the future miseries they are laying the seeds of, in chest, abdominal, and other diseases, or they would be more cautious

in their habits of dress, wearing fairly loose garments, which, while they do not impede the respiratory movements, give free play for the limbs in exercise.

Causes and Effects of Defective Breathing in Childhood.—Again, in young children with defective pronunciation and nasal breathing we often remark the peculiar prominence of the chest in front and the deformed appearance of its sides. This is frequently the result of nasal obstruction caused by growths behind the nose lying in the way of the air, which should pass through the nasal cavities (the natural breathing passages), and find its way back behind the soft palate to the windpipe. Enlarged tonsils help the mischief. So also does any obstruction in the nostrils, the consequence of growths or congestion of the lining membrane, or the displacement of the bones.

These glandular growths block up the posterior nasal apertures, compelling the child to sleep with the mouth open, and to breathe entirely by the mouth. Snoring is the consequence, and often a permanent injury to the voice, and a faulty method of pronunciation. The hearing also becomes affected, the relation between the aural and vocal apparatus is destroyed, the correct appreciation of fine musical

sounds is lost, the 'musical ear' is injured and its future capacity for education impaired. Hence we learn the importance of early attention to these throat troubles in children. Enlarged tonsils should be removed, these little growths behind the soft palate got rid of, and the nostrils kept clear. The child should be watched and educated to sleep with the mouth closed.

Catlin, in his 'History of the North American Indians,' having spent a long time with the Red Indians of North America, has particularly referred to the habit of breathing through the mouth and not by the nostrils in sleep. Of two millions of Indians whom he examined, he only found three or four deaf-mutes. He did not meet a single individual who had the habit of breathing by the mouth. Deafness was quite exceptional, and not one of 150 chiefs whom he questioned could remember a deaf comrade. The Indian mothers take special precautions to prevent oral respiration in their young children.

Relation of Throat to Chest Troubles.—The earliest warnings of future fatal throat troubles are frequently felt in the lungs; while, on the other hand, neglected throat mischief often leads on to lung complication. Should any dryness at the back of

the throat exist, or unpleasant odour be present with the breath, and discharge accumulate at the back of the throat, it should be seen to at once.

No person who finds his voice constantly and recurrently husky, with some slight expectoration and perhaps teasing cough, should put off an examination of the chest and neglect having the advice



FIG. 37.—CROUP KETTLE.

of his ordinary physician. A winter abroad might save his life, or at least early attention to the throat may completely avert the impending danger.¹ Especially in a relaxing, humid climate, with variable temperature and winds, is this caution

¹ See Table of Health Resorts.

necessary. The chronic sore throat is peculiarly difficult to treat in such climates.

Symptoms of Croup or Diphtheria in Children.—

In croup and diphtheria many lives are lost from want of attention to the earliest symptoms. A hoarseness of voice ; a peculiar barking cough ; a characteristic and audible roughness in the inspira-

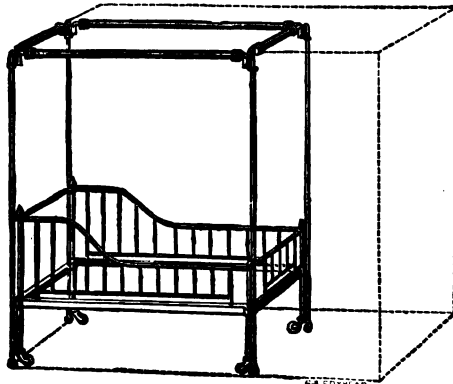


FIG. 38.—CROUP COT, WITH FRAMEWORK (ALLEN'S).

tion (heard when the child lies asleep) ; some slight feverishness and heat of skin, and perhaps soreness of the mouth and throat, or difficulty in swallowing, should attract attention and call for medical advice. Should they occur suddenly and at night when medical aid cannot be had until morning, an emetic of ipecacuanha wine, a warm

bath, some mustard application to the chest, and an enema may give temporary relief. The temperature of the room in these cases should be carefully seen to. Nothing is more disastrous in such throat troubles than alternations of temperature. Messrs. Allen's Croup Kettle, by means of which medicated (carbolised) vapour can be kept in constant motion about the bed or chamber, is not sufficiently known. Fig. 38 represents the portable iron frame supplied by this firm so as to construct a tent over any cot. Fig. 37 shows the Croup Kettle, which may be had separately, the tube of which is passed in through an aperture in the curtain; the air is thus heated and medicated. The kettle can stand on a small table. It must be at a distance from the child and the bed and apartment should be carefully ventilated.

Relaxed and Elongated Uvula and Enlarged Tonsils.—A potent source of irritation in such persons is the elongated uvula; this hangs down on the back of the tongue, and immediately over the protecting cap of the larynx. It gives rise to that tickling sensation, that 'hacking cough' which is so annoying both to sufferer and listeners. So also this elongated uvula is at times connected with a feeling of exhaustion after speaking or reading for any time, and is a complete barrier

to singing some of the high notes. If it should be elongated, and the enlargement does not yield to simple astringent gargles or lozenges, it ought to be removed. This very trifling step is almost painless and perfectly safe, and I can vouch from the instances of many singers whose uvula I have removed, the entire or portion of it, that its removal is often followed by a marked improvement in the voice. The same observation applies with

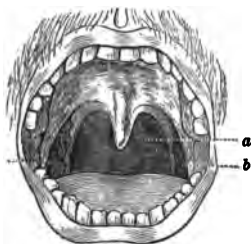


FIG. 39.

MOUTH AND SOFT PALATE.

a, uvula; b, tonsils lying between the pillars of the pharynx.

equal force to removal of the tonsils. These latter troublesome glands may be kept in check by suitable astringent applications; such as lozenges (kino, eucalyptus, catechu, guaiacum, chlorate of potash)¹ or gargles, &c. Frequently I have found elevation of the

voice and clearness in the tone and notes follow extirpation of the tonsils. This is said to have occurred to the extent of half an octave. The instance of Madame Patti is sufficient to prove the

¹ To efficiently gargle the throat, the person should lie down on the back, having the head low. A little common salt, in warm water, if nothing else be to hand, is often very soothing to relaxed throat.

benefit of removal of the tonsil on the voice. *Both of these operations are of the simplest nature, are practically painless, and the very slight bleeding is as a rule quickly controlled.*

The diagrams (figs. 40, 41) represent merely in outline the opening into the larynx and the vocal cords. These vibrating ligaments are placed in the voice-box just behind 'Adam's apple,' and are the essential elements in the production of the vocal

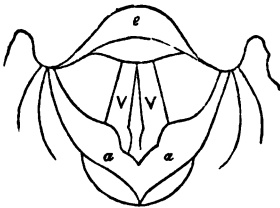


FIG. 40.—VOCAL CORDS CLOSED
(Phonation).

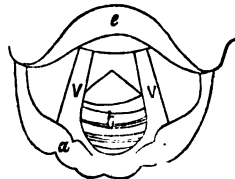


FIG. 41.—VOCAL CORDS OPEN
(Inspiration).

sounds. They are set vibrating by the air which is driven against them by the lungs—they are thrown widely open when we breathe air into the lungs (fig. 41); they are brought together during phonation, as when we articulate the vowel *a*. These cords are readily seen by means of the laryngoscope, a simple contrivance, that enables us to throw light on to a little mirror held at the back of the throat at such an angle that on our looking at it we get a view of

the vocal cords—we can thus watch a scale being sung, see any inflammatory state of the cords, any growths or other diseased conditions.

By a very simple plan, and the assistance of an ordinary looking-glass, we can readily examine our own vocal cords. We owe all this knowledge in recent years to Manuel Garcia and Professor Czermak. There is no difficulty in mastering the

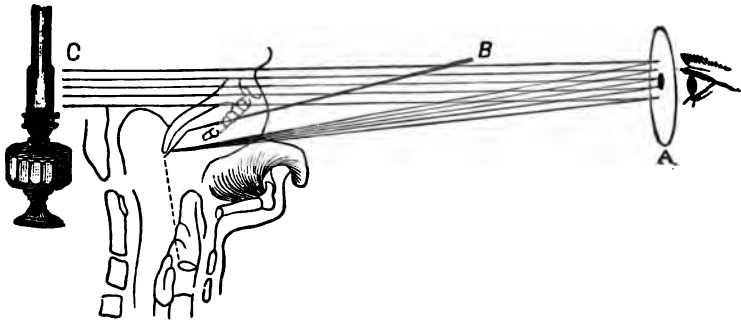


FIG. 42.—PRINCIPLE OF LARYNGOSCOPE.

A, eye of observer behind face mirror; B, small hand mirror; C, lamp.

laryngoscope—all that it requires is a little experience in manipulation and some patience.

The light from the lamp is reflected by the face mirror on to the small mirror placed at the requisite angle in front of the uvula. By a little manipulation the observer at A sees the vocal cords reflected in the *small* mirror.

Fig. 43 shows the Auto-laryngoscope used by the late Dr. Foulis, of Glasgow. It can be obtained from Messrs. Hilliard & Sons, Glasgow. A lamp is placed behind the globe, and thus the light is concentrated in the throat of the person, sitting in front of it. He applies the small laryngeal mirror to the back of the throat, and looking in the mirror

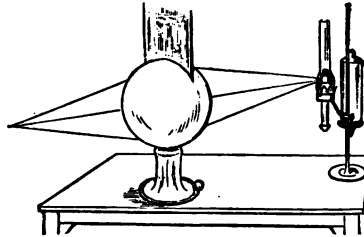


FIG. 43.—FOULIS'S AUTO-LARYNGOSCOPE.

surmounting the globe, he sees the image of the larynx reflected in it.

The Vocal Cords.—In a great measure the pitch of the voice and its other qualities depend on the vibrations and state of tension of these cords, and, therefore, on their length and thickness. If they are flaccid, congested, relaxed, uneven, ulcerated; if either cord be paralysed or partially so, and the nervous power controlling the muscles that regulate their action be impaired, the voice is either seriously altered or it may be altogether lost.

These cords are entirely under the control of muscles, and on this muscular moving force our power of speech almost entirely depends. Hence all nervous disorders that influence the strength or vitality of this muscular motor force may seriously affect the voice—say, paralysis, hysteria, general debility, shock. Hence the good effected by the simple step of galvanisation of the laryngeal muscles.

The Effects of Climate.—For this reason it is that dry, invigorating, bright climates are the best to send throat patients to. And often a change of climate, with accompanying variety of scene and surroundings, and relinquishment of the ordinary avocations, will do more to restore an impaired voice and delicate throat than months of local treatment. The worn-out professional man, be he clergyman, lawyer, or physician, with an exhausted nervous system and delicate throat, will find more return for his money in a sojourn in Switzerland, a stay in Algiers or Tangiers, a trip to Egypt, a few months at Davos Platz, Sankt Moritz, or a sea voyage, than from any topical application.¹ Or, if he cannot go so far from home, let him visit one of the many delightful health resorts in the south of England, or take advantage of the clear and bracing air of Scotland.

¹ *Vide* Table of Health Resorts.

Effects of Indigestion on the Voice.—It is a matter of common observation that indigestion or imprudence in meals is hurtful to the singer. The throat suffers, in common with the rest of the system, from chronic dyspepsia. For the singer this is perhaps more directly caused by the mechanical effects following from indigestion, in the full stomach, and the consequent encroachment on the thoracic cavity, preventing free play of the lungs. But we not unfrequently find that irritable states of the throat, and some accompanying reflex cough, are the consequences of an imperfectly acting digestive system. The state of the tongue, dry, coated, and hard, as it often is, in the mornings, will indicate this condition. The stomach ill digests during sleep. Flatulent pains, palpitations, accompany this dyspepsia. So the dyspeptic who suffers from his throat is often low in health and out of spirits, morose, nervous, gloomy, and despondent.

Alcohol: Influence on the Voice.—As to alcohol, I have always found that abstinence from stimulants, or great moderation in their use, was beneficial rather than otherwise in the treatment of affections of the throat. Mr. Lennox Browne quotes Mr. Sims Reeves' opinion, in a letter written by him on the subject :—

‘By long experience I find it much better to

without them entirely. A glycerine lozenge is preferable ; on very rare occasions a small quantity of claret and water may be necessary ; but all alcoholic stimulants are detrimental. I formerly, and for many years, used beef tea, but that was too heavy. If one could limit one's self to a table-spoonful at a time, the latter might be the best ; but a large draught clogs the throat, and produces more saliva than is necessary, and induces the desire to swallow often.'

Perhaps claret or a little whisky and water at dinner, or Carlowitz, or any of the still wines, are the least hurtful ;¹ but, as a rule, sherry, champagne, port, and fermented drinks are injurious. I must also record my conviction that smoking is, speaking negatively, not beneficial to the delicate throat. Though many noted singers may have smoked incessantly, and continue to do so without any influence on the voice, so far as my experience enables me to judge, I would say to all those troubled with a delicate throat, husky voice, and dryness of the palate, relinquish the habit of smoking, or indulge in it with extreme moderation.

¹ The Australian wines (Australian Wine Co., Mill Street); both red and white (Auldana and Emu), may be well substituted for claret where a stronger wine is required.

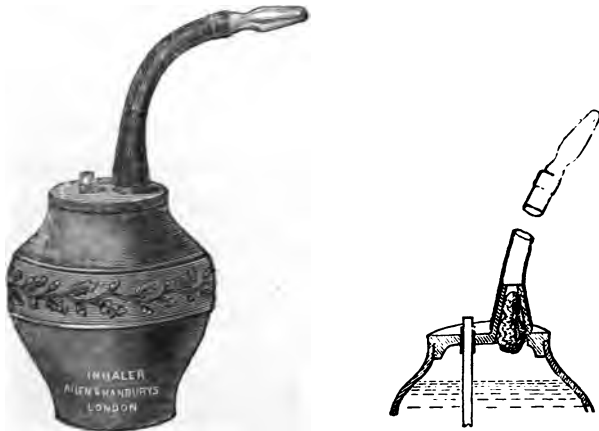
Hoarseness and Huskiness.—Hoarseness, huskiness, a tired and weary feeling in reading aloud, an inability to sing the high register, a strained sensation in reaching certain notes, a sense of dryness—these are some of the complaints commonly made by persons who suffer from a slight congestion of the vocal cords, and frequently of the posterior wall of the pharynx just behind the soft palate. If we look carefully at the back of the throat in a looking-glass, depressing the tongue with a spoon-handle, we shall see a number of little glistening or elevated bodies, the natural follicles existing in the mucous membrane, enlarged and hypertrophied. This state commonly exists in that form of affection called ‘clergyman’s sore throat.’ Often there is with it an elongated uvula, which causes further irritation and annoyance, and produces a troublesome cough. Unfortunately this delicacy is increased and serious mischief is induced by the continued exertion of public speakers and lecturers, even in the face of urgent entreaties to rest the voice.

For ordinary catarrhal states of the throat, inhalation of pine oil and eucalyptus oil are most beneficial; about fifteen drops of each in the half-pint of water at some 140–150° of temperature.

The temperature of the water to which the

medicament is added should be about 150° F. If a thermometer be not at hand, the proper temperature may be sufficiently produced by the addition of two parts of boiling water to a little more than one part of cold water.

The quantity of the inhalation to be added to



FIGS. 44-5.—IMPROVED INHALER OF THE AUTHOR'S¹ (ALLEN AND HANBURY, LONDON).

the water must depend on the strength prescribed—generally a teaspoonful to the pint or half-pint. In the case of a strong inhalation of a volatile oil, the medicament may be dropped on a piece of sponge or cotton wool, and placed in the tube chamber in

¹ Messrs. Allen & Hanbury have made, at my suggestion, a new and improved inhaler. The jar is of Doulton ware and is rather ornamental, while it is comparatively inexpensive.

the lid of the inhaler, the water being placed in the jar as before.

The vapour should be drawn slowly into the lungs, at the rate of about five or six inspirations per minute, for about ten minutes.

Perhaps the most suitable times for using inhalations are the early morning, mid-day, and just before bedtime, in each case before meals.

The patient should not go into the cool air directly after inhaling.

When nasal inhalation is required, it is only needful to substitute a nasal-piece for the mouth-piece, and proceed as in ordinary inhalation (nasal-piece can be had separately).

Both Bullock's and Martindale's or Maw's Inhalers are useful appliances to keep in a house.



FIG. 46.
ROBSON'S INHALER.

Fig. 46 shows Messrs. Allen's (Marylebone Lane) convenient Inhaler (Mr. Robson's patent) which will be found both efficient and economical. 'The hot water and medicament are placed together around the central cylinder running up from the base of the vessel. The separate cap shown at the



FIG. 47.

ALLEN'S THROAT AND HAND SPRAY.

side is made to lift loosely over the cylinder. The external air enters by holes in the lower rim, and

rising through the cylinder, descends the cap and small arms attached, and finds exit *only* at the lowest point of the fluid to be inhaled. Passing

up through the whole body of the inhalent, it emerges in the form of

thoroughly medicated vapour, which is breathed without effort by the patient.

Without the cap the action is automatic, the mixed air and steam issuing from the mouth-piece in a continuous stream.'



FIG. 48.—KERR'S INHALER (MESSRS. GODFREY & COOKE).

For Nascent Chloride of Ammonia. By this simple inhaler the chloride of ammonia vapour can be readily generated.

So in these days of universal antiseptic treatment in all affections of the throat and lung, both for medicated inhalations and for disinfecting the air of a bed-room, their excellent little 'Throat and Hand Spray' will be found most useful (see fig. 47).

Many a delicate throat and chronic weakness

of the voice has commenced by the attempt to sing at some public concert, or even in private, when the performer has had some slight cold, and the throat was passing through a catarrhal state. Rest is the great antidote to this form of throat

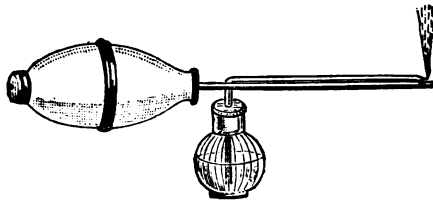


FIG. 49.—AMERICAN (WHITTALL'S) NASAL ATOMISER, FOR SPRAYING THE NASAL PASSAGES FROM THE THROAT (MESSRS. ALLEN & HANBURY).

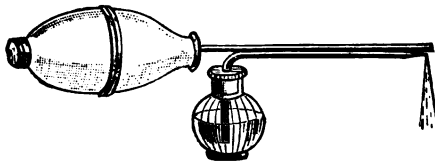


FIG. 50.—AMERICAN (WHITTALL'S) THROAT ATOMISER, FOR APPLYING SPRAY TO THE THROAT.

trouble. Change of air, proper care of the throat as regards temperature and clothing; mildly stimulating inhalations (the nascent chloride of ammonia will be found a capital inhalation), the use of sprays and insufflations, and some simple astringent

lozenges (compound eucalyptus, and effervescing eucalyptus, Wyeth's compressed lozenges of chlorate of potash) are some of the simpler means of dealing with this condition. I have had lately made cigarettes of eucalyptus leaves and oil (Messrs. Corbyn, Stacey & Co., 86 New Bond Street), of iodoform, and some with eucalyptus and carbolic acid, and eucalyptus and pine oil. Such cigarettes will be found useful in affections of the throat and middle ear. The entire naso-pharynx can be subjected to the vapour—it can be expelled through the nose, thus removing all unpleasant smell. The middle ear can also be subjected to the influence of the vapour by blowing it, in the manner already mentioned, into the Eustachian tube. Eucalyptus and carbolic vapour is useful in lung troubles. Should a loss of voice from nervous paralysis ensue in any case, whether hysterical or otherwise, the function of the weakened muscle may be completely restored by galvanism, properly applied. But this can only be efficiently done (internally) by the aid of the laryngoscope.

Precautions in Teaching Singing.—In the practice of singing, too much stress cannot be laid on the enforcement of proper periods of rest, both in class singing and also in practising in private.

The young voice especially requires rest after any unusual fatigue or strain—this may be had in proper part singing in class or properly conducted chorus singing. But to hurry untrained voices into a choir, to sing without an experienced guide, and to attempt notes beyond their range and power, is most disastrous to the cultivation and future purity of the voice.

Change of Voice.—When the voice is changing at the age of puberty, especially in boys, the ligaments of the larynx are enlarging at an unequal ratio with the muscles, and the result is, that the congested and thickened cords, inadequately acted on by the muscles, are deficient in tone, and hence we have the peculiar harsh note of that period of life. It is evident how carefully must this change be anticipated, how cautiously must the period of its completion be encroached on, and with what care must we see that it has passed before we permit the use of the voice for singing purposes.

For the rest, as regards the voice, I have only to caution all persons with delicate throats to be careful of the manner in which they clothe and protect this sensitive part.

Wearing Wraps.—As much harm is done by

over-nursing as there is by over-treating and over-quacking the throat: wearing comforters and wraps at one moment and throwing them off the next; going out to-day with a respirator and leaving it off on the morrow; want of caution in leaving public buildings, heated ball-rooms, churches, and theatres. Great woollen wraps should be discountenanced, and light silk handkerchiefs worn; at night, a silk handkerchief tied round the throat on going to bed will often give relief to a congested throat; or a water bandage—a piece of lint or linen wrung out of water, and applied to the throat, with some oiled silk over it, and a silk handkerchief tied over all. The great danger in all throat wraps is the tendency to throw them off suddenly, to forget them, or take them on and off either for convenience or appearance' sake. Men with delicate throats will find great benefit from the growth of the beard and moustache. The former acts as a protector, the latter as a respirator.

Respirators.—Veils are objectionable, as they become moistened by the breath and do not sufficiently protect the mouth. If a respirator has to be worn, I prefer that the patient should wear some one of the many kinds to be had of any

chemist. But anyone may construct an admirable respirator for himself with some wire gauze and cotton-wool, the latter being necessary to prevent



FIG. 51.—SIMPLE KNITTED RESPIRATOR.

The two pieces of the respirator are not closed at the lower edge, so as to admit of the insertion of medicated cotton-wool.

the entrance of particles of dust or organic matter. A simple and cheap respirator may be made by knitting two small oval pieces of Berlin wool, and binding these together, with some gauze placed

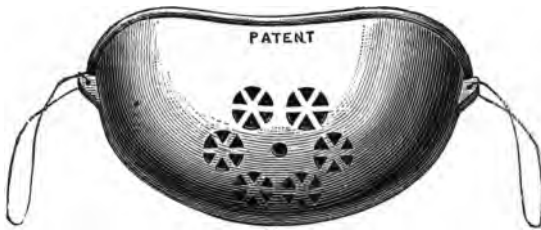


FIG. 52.—THE COGHILL RESPIRATOR (MAW & SON).

between ; a piece of thin elastic fastens this readily made respirator round the head.

I cannot conclude these hints without pressing on my readers the great importance of early

attention to the voice in children, and reminding them that, just as the ear can be trained and cultivated, even when it is apparently deficient, so can the voice; and that, if proper attention be paid to posture and respiration, no more healthful exercise of the lungs, or practice of

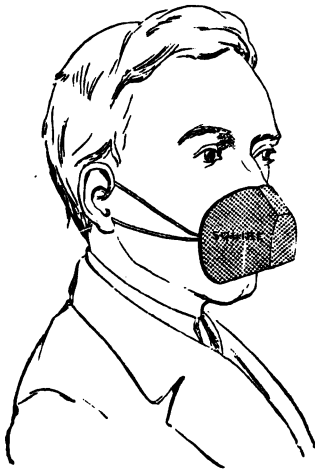


FIG. 53.—SQUIRE'S RESPIRATOR.

gymnastics for the chest muscles, can be had than the systematic training of the voice in scale singing and the various other exercises through which a judicious teacher carries his pupils, proportioned to their powers and years.

The useful respirator of Dr. Coghill (fig. 52), is especially to be recommended where medication of the lungs is required. Cotton-wool, on which the medicament can be dropped, is contained between the perforated portions of the respirator. Where price is a consideration, Messrs. Squire, of Oxford Street, have a light naso-oral respirator

made of perforated zinc, which answers for every purpose. This respirator can be had with carefully prepared cotton-wool, which is contained between the layers of the perforated metal. It completely protects the nose and mouth from the entrance of noxious particles, as it forms a perfect air filter, and it thus quite justifies the name it has received as the 'antiseptic respirator.' It costs but one shilling.

Stammering and Stuttering.—I can only here devote a few words to the subject of defects of speech. Vowel sounds are primarily laryngeal. Consonants, on the other hand, are sounds produced by junction with a vowel, the air currents passing through the nose, naso-oral, and upper throat passages. It will be found that stammering and stuttering are due to a fault in the co-ordination of the laryngeal mechanism of the voice and organs of articulation, the lips, tongue and palate. This is specially so in stuttering in contradistinction to stammering, in which latter the defect is more especially felt in vowel *pronunciation*. There is, as Kléncke expresses it, a lack of harmony between vocalisation and articulation. In stammering the lack of harmony in vocalisation preponderates, in stuttering it is felt principally in articulation. The

classification of consonants into explosives, labials, dentals, aspirates, gutturals, depends on the mode of production of these several letters by the action of the lips, tongue and soft palate in their pronunciation, as well as on the part taken by the nasal passages or the lungs in the direction of the expiratory currents of air, and the interruption of these by the articulating organs in the cavities of the mouth and nose. No air passes through the nose when a vowel is said or sung.

The reader who wishes to understand clearly the physiological distinction between stammering and stuttering, must consult some of the larger works on this subject. I can only group the principal causes operating in the production of both these defects.

(a) Defect in the conformation of the articulating organs, as the tongue, fauces, palate, pharynx, nasal passages and bones.

(b) Spasmodic contractions of the muscles, and nervous states which produce inco-ordination in the muscular movements.

(c) Inharmonious relationship of the will to those movements which are carried on independently of it. When the attention is directed to the defect of stuttering, this want of harmony is increased,

and the stutter becomes worse. Whereas by a strong effort of the will, the habit of stammering may at times be controlled.

(d) Fright, shock, mimicry, imitation, nervous and excitable temperaments.

Only a few hints can be given regarding the management of those who stammer or stutter. First, any deformities in the nasal passages, mouth, or palate should be attended to, and suitable vocal gymnastics practised under some trained teacher. Secondly, the greatest patience must be shown in leading the stutterer on from those letters and words which he can pronounce rightly to the more difficult ones, and these latter he must be cautiously exercised in. Thirdly, the mind must be as far as possible diverted from the act of stuttering by any artifice, and everything that is emotional or exciting avoided. Fourthly, in a delicate person, especially a child, the general health must be maintained, healthful exercise and recreation insisted on, gymnastic exercises, and the cultivation of automatic and perfect association of movements in other ways encouraged, as, for example, playing on the piano, accompanying, and singing.

CHAPTER V.

HABITS THAT AFFECT THE SMELL, TASTE, AND SKIN.

The Sense of Smell.—The nerve that enables us to smell by carrying impressions of odour to the brain, terminates by extremely fine filaments in the mucous membrane of the nostrils. The air passing through the nostrils brings the odoriferous particles into contact with these nerves. Our sense of smell is infinitely more delicate than the other senses. Valentin has estimated this delicacy of the sense of smell by our power of perceiving the three one hundred millionth of a grain of musk. As is well known, this sense is much stronger in the lower animals. Arresting the breath or filling the nostrils with water destroys for the time the power of perception. Speaking broadly, most substances which are injurious to health have an unpleasant odour.

The Nostrils : Discharge, Injuries, Catarrhs.—

When any disagreeable odour continues from the breath for any time, the nose and throat should be examined. Frequently the unpleasant smell continues to increase until the sufferer is prevented from attending to his ordinary business. The cigarettes before mentioned of iodoform or the eucalyptus will be found very useful both in the treatment of the odour and for curing the morbid state of the nasal mucous membrane. But if this condition be aggravated, the use of a proper nasal douche is called for, and topical applications. Any obstruction in the nostril, and in children, deviation of the septum (partition) of the nostrils to either side, should be seen to. Children should be taught to sleep with the mouth closed and to breathe during sleep through the nose.¹ It must always be remembered that the air is both filtered of impurities and warmed better when it passes through the nasal passages and not directly through the mouth. If the nose is injured by a blow and any deformity results, it should be rectified at once. Delay tends to increase the difficulty of rectification and leave a permanent deformity. As a rule,

¹ A respirator for this purpose may be had of Messrs. Maw & Son.

bleeding from the nose is easily controlled. If it goes a degree beyond this, it is better to seek the help of a surgeon. Ordinarily, rest in the horizontal position, the head being kept on a little higher level than the shoulders; the suction of ice, pressed against the hard palate; sniffing up a little cold alum water into the nostrils; a cold cloth on the nose and forehead, will subdue it. For cold in the head and acute coryza (irritation of the mucous lining of the nostrils and discharge), Dr. Ferrier's snuff is a useful remedy at times, when used early in the affection. It is composed of—

Muriate of morphia . . .	2 grains
Powdered gum acacia . . .	2 drachms
Subnitrate of bismuth . . .	6 drachms

Snuff-taking.—The organ of smell suffers in its own way from alcohol and tobacco. The habitual congestion of the nose, produced by indulgence in alcoholic beverages, is but an indication of a like congestion in other organs. The habit of snuff-taking is, I am happy to say, dying out. Snuff finds its way into the nasal and respiratory tracts, drying the former, and producing irritation of the latter. I have more than once removed it from the tube leading to the ear, where it was causing obstruction and producing deafness. That

snuff-taking is a cleanly habit few of its slaves will ask us to believe. The pocket handkerchief of the snuff-taker serves a double purpose. Some few ladies nowadays may relish a whiff of a cigarette. But the day of the 'impertinent woman's' perfumed snuff-box of Steele has long disappeared. We might wish that men had the good sense of women to abandon the habit. I think we have all with him 'been so extremely disgusted with this filthy physick hanging on the lip, that the most agreeable conversation or person has not been able to make up for it.'

Taste.—The delicacy of our *sense of taste* may be estimated by the fact that we can recognise a solution of one part of sulphuric acid in 1,000 of water (Bernstein), or one drop containing $\frac{1}{2000}$ of a gramme of the acid. If our tongue is responsible for a good deal that escapes our lips, the back of this organ and the palate are answerable for a great deal of trash that passes in. There is no doubt that smell and taste have a close association. Without smell we could not taste many things of the most delicious flavour. So 'tastes differ,' and, as some eyes are colour-blind, so some palates are tasteless. I had once a patient who from birth had never tasted 'bitter' or 'sweet.' I tried a

variety of acids and pungent substances, and found that he failed to discriminate them. His smell was equally deficient. The influence of smell or taste is shown when we suffer from an ordinary cold in the head, and by the old habit of holding the nose to prevent the nauseous taste of medicine; in the opposite way it is utilised by the epicure and the wine-taster. Whatever tends to disarrange the digestive tract influences the tongue, coats it, and gives to it that familiar loaded appearance.

The Tongue and Taste.—In children there is that characteristic stripping of the tongue in patches, often brought on by the injudicious rashness of mothers, who cram the children's stomachs with all kinds of trash—sweets, cakes, sugar, fruit, and any or every abomination calculated to impair the child's digestion; hence skin affections, catarrhal state of different organs, and then follow interminable dosings for worms, which are not in existence. Very hot drinks are injurious both to the teeth and tongue, and are impediments to digestion as well. The use of the clay pipe in producing cancer of the lips is proverbial. But now there are familiar and more elegant substitutes. If mothers nursed their children as nature intended, gave them less trash

and plainer diet, with less of mercury in those constantly repeated 'grey powders,' and more oatmeal porridge and milk, we should have less work for the dentist, and fewer cases of disease from impaired digestion, or death, in after life, from the swallowing of artificial teeth.

Teeth and Dentition.—The appearance of the temporary teeth, the 'period of dentition,' is frequently accompanied by gastric troubles and occa-

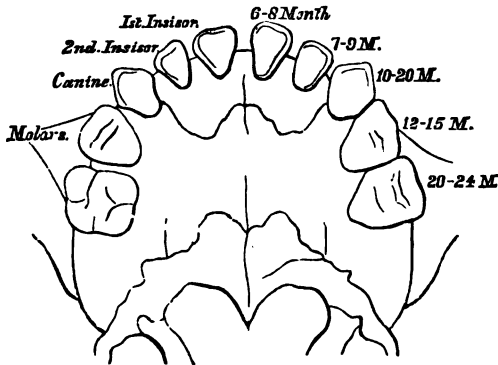


FIG. 54.—THE TEMPORARY TEETH OF A CHILD TWO YEARS OLD.
Showing the months at which they appear ('Atlas of Anatomy').

sionally brain mischief. It is during this time that what we understand as reflex disturbances manifest themselves in the infant's system. Attacks of croup and whooping-cough occur. Skin affections are apt to appear. The eye also is subject to

herpetic attacks. The late appearance of the temporary molar teeth teaches its own lesson. The child should not be given quantities of animal food or uncooked starchy food. The child's abdominal secreting organs at this early age are not fully developed, and, as a consequence of injudicious diet, the abdominal glands become enlarged and a depraved appetite in the child may be encouraged.

We have to be cautious in the use of those lauded 'tooth pastes;' the acids some contain erode the enamel and destroy the teeth. Calvert's carbolic tooth powder will be found a perfectly safe one. It is pleasant to use and is a sufficient disinfectant. It is a mistake to use too hard tooth brushes. Regular brushing with plain cold water is, perhaps, the safest method of keeping the mouth clean. To rinse the mouth out night and morning with very weak Condly water is a good plan to keep the mouth pure. Particles of food should not be allowed to collect between the teeth. The neglect of rough and jagged teeth is dangerous; these often produce ugly ulceration of the tongue, and should be filed. It is foolish to be in too great a hurry to have teeth taken out. It is better to bear a little pain, and often the friend we were so anxious to lose will do the 'state good service.'

Touch.—We can judge by the movements of the tongue in the mouth, as with its tip we measure and survey each tooth, how accurate is the sense of touch when unassisted by sight. In this way, by the education of the tactile perceptions of the skin, and the experience gained through this sense, the blind are taught to work and read. In the human hand this faculty is most highly developed.

This diagram represents the layers of the skin ; (1) the horny layer or superficial skin and cuticle ; (2) the mucous or Malpighian layer—here lies the pigment which gives the hue or colour to the skin ; the sensitive tactile papillæ are seen projecting into this layer ; (3) the dermis or true skin—this is composed of a very compact structure, and is found supported on a looser tissue ; (4) in the meshes of which there is a quantity of fat and the convoluted sweat glands. A duct of one of those glands is seen to run straight through the true skin, and then to



FIG. 55.—SECTION OF SKIN AND A SWEAT GLAND (AFTER NEWMANN).

pass in a spiral form through the cutis, opening by a minute pore on the surface of the skin. A hair is

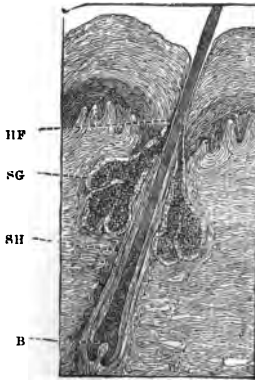


FIG. 56.—HAIR FOLLICLE
(AFTER NEWMANN).

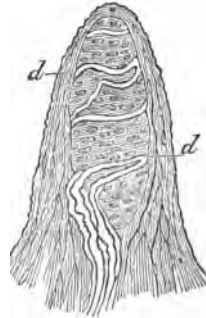


FIG. 57.—TACTILE CORPUSCLE OF THE SKIN.
Showing the termination
of the nerves.

seen in fig. 56, with its bulb (B) ; its sheath (SH) ; the sebaceous gland (SG), with its duct opening into the hair follicle (HF). One of the tactile corpuscles of the skin is shown (fig. 57). These corpuscles, with their delicate nervous elements, minister to the sense of touch. The fineness of this sense is made use of in testing the sensibility of the surface of the body in different parts, in affections of the brain and spinal cord, and in estimating the tactile power of the cutaneous nerves to transmit to the brain correct impressions of the distance

between any two points on the surface of the body. This is done by means of an instrument with two very fine points like those of a compass (*Æsthesiometer*), the patient being at the time blindfolded.

Function of the Skin.—This sensitive and delicately formed structure forms a vast excreting surface. The average amount of perspiration given off by the skin in the twenty-four hours may be estimated at 2 lbs. This exhalation has a necessary relation to the excretion of water from the kidneys, and the exhalation of watery vapour and carbonic acid from the lungs. How closely related are the lungs, kidneys, and skin is shown by the simple experiment of varnishing the skin of one of the lower animals, when a state of ‘cutaneous asphyxia’ results, and the animal dies with perverted renal secretion. It has been calculated that the total number of pores on the surface of the body is equal to about seven millions, and that the entire length of the perspiratory tubing, if straightened out, would measure 1,570,000 inches, or nearly twenty-eight miles. These few facts being remembered, we have little difficulty in estimating the importance of the skin as a health organ; to maintain circulation; to promote evaporation;

to preserve a mean temperature and prevent extremes of heat and cold ; hence the importance of keeping its pores open and its sebaceous follicles free.

So we can by the skin perceive most delicate differences in temperature. The degree of sensibility may depend on the thickness of the skin. We avail ourselves of this property in examining the temperature of swollen and inflamed parts, as that of a joint with the hand.

Temperature of the Body and of the Bath.—The clinical thermometer has nowadays replaced the old *tactus eruditus* of our forefathers for ascertaining the elevation of the body's temperature. The normal temperature of the body is about 98°. If above 99°, it means that there is some febrile state, and in fever the temperature range varies from 100° to 105° or more. For estimating the heat of a bath into which we are going to place an infant, the woman's elbow bared and placed in the water affords a ready, if rough test. Care is required in bathing infants and young children. Their tender skins and sensitive systems will not bear extremes of temperature. It is not right to nearly scald or to exhaust the child. For therapeutic purposes from three to five minutes is quite suffi-

cient time to keep the child in the bath, and the greatest care should be taken afterwards lest it suffer from cold. Warm blankets should be ready, and the infant should be thoroughly dried. The temperatures of warm baths are not sufficiently attended to by those who take them. I have in my own experience known of three sudden deaths in the bath-room of persons in ill-health who had taken or were in the act of taking hot baths. Doubtless the water was of too high a temperature and cerebral congestion and apoplexy were the consequence. The temperature of the tepid bath should not exceed 94° ; that of the warm bath 98° ; and the hot may vary from 100° to 110° .

Public Baths.—I know no greater public want in many cities than properly constructed baths: I mean such a bath as could be had comfortably for a few pence. In the treatment of skin affections baths are indispensable, and at present many large towns are in a deplorable condition in this particular. I think that suitable public baths, to which may be added medicinal baths, even as a commercial speculation, would repay the investors; and for all classes of the community they would be an inestimable boon.

The Turkish Bath.—We have in most cities admirable Turkish baths. This form of bath is a most valuable remedy in the treatment of catarrhal affections of the throat and nose and in rheumatic conditions. But it must be remembered that the



FIG. 53.—PORTABLE TURKISH BATH.

hyperæmia of, or determination of blood to, the skin caused by the Turkish bath is not good for those suffering from certain skin affections. The Turkish bath does good by the free escape of fluid from the skin, and by relieving congestion of the internal organs it thus thoroughly cleanses the skin. If the skin is not in an irritable or inflamed state, and if its vessels are sluggish, the bath may do service. But I do not consider the prolonged daily employment of the bath healthful. I have never known it to be so. As a luxury for lazy people, and those leading sedentary lives, it may be extolled; but to carry its use to extremes, and subject the body daily, or at frequent intervals, to

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the sudden physiological changes produced by the Turkish bath, cannot for many constitutions be beneficial. But as a help in treating disease, more particularly the early stages of febrile affections, and as an occasional thorough process of cleansing, the bath is a most valuable agent.

Fig. 58 shows the portable Turkish bath of Messrs. Allen, of Marylebone Lane. This will be found a most convenient means of obtaining quickly and comfortably a vapour bath. With it a copious perspiration may be induced in a few minutes. It will be found most useful in the early stages of feverish cold and in rheumatism. In chronic rheumatism and the consequent stiffness of the joints, Zander's exercises (Zander Institution, Soho Square) are a most valuable means of cure.

Cold Bathing.—We should not be led astray by heroic ideas of the benefits derived from cold bathing. Both in the instance of children and adults the cold bath is often abused. Unless there be a healthy reaction after the cold bath or sea-bathing, it does not conduce to health. The idea of 'breaking the ice' on one's bath, on a winter's morn, is very well for some circulations, and the bracing effect and after-glow are delightful; but for those

with feeble constitutions and sluggish vessels, whose blue appearance and 'goose skin' on coming out of the water tell of arrested circulation and congestion of internal organs, the extreme cold and the shock of shower baths and ordinary baths in cold weather are hurtful, and should not be continued. In the case of children these remarks apply with double force. Often we find that hours elapse before some children and adults regain the natural temperature after cold bathing. For such it cannot be good. Bathing immediately before or after meals, with the stomach empty or full, is harmful; so is it after violent exercise. I have already referred to the injurious consequences which may follow from diving from heights on the head into the water. Severe headache, noises in the ear, deafness, should act as a warning against the habit.

Flannel next the skin.—The wearing of flannel next the skin is apt to induce in some persons, from the irritation it causes, various kinds of skin affection. If flannel causes irritation and a tendency to scratch the skin, it should be taken off and worn outside a linen shirt, so as to preserve the heat without causing irritation.¹ A simple soothing bath for

¹ I have found in several persons suffering from skin irritation

the skin is made by adding some ounces of finely-powdered starch and the same quantity of bicarbonate of soda to the thirty gallons of warm water. Soaps to be specially recommended are Pears' Soap, Wright's White Curd Soap; (Disinfectant and Medicated) Thymol (Squire), Eucalyptol (Squire), Chaulmaugra (Corbyn & Co.), Terebene, Sulpholine.¹ Terebene is an admirable disinfectant soap for hospital and other purposes. It is pleasant to use; so also are both Thymol and Eucalyptol, especially the latter. Chaulmaugra is of special value in chronic skin affections. The Thymol soap in the ringworm of children will be found an excellent soap. Carbolic and Tar soaps—especially the latter—when used under advice, are both powerful aids to the treatment of scaly skin affections. Errors in diet quickly show themselves in morbid skin states; large wine-drinkers, those who eat little vegetables, great eaters, often suffer most. Hence so common are these skin troubles in gouty

the new porous 'Long Cloth' of Messrs. Lewis & Allenby a most admirable material for wearing as underclothing. It is made of silk, and is a marvel of cheapness and comfort.

¹ Messrs. Bullock, of Hanover Street, Hanover Square, have made at my request a compound Larch soap, composed of the Larch soap of Dr. Moore, with a percentage of Thymol and Eucalyptol. This is a most soothing soap for the skin. They have also prepared a special tar and glycerine soap.

patients, whose pangs are increased by their pastry-cooks, their fatty dishes, and saccharine wines.

Contagious Skin Affections.—The contagiousness of skin disease and the living parasitic sources, animal and vegetable, of many of these should be remembered. Thus it is that overcrowding in schools leads to skin disease. These fine vegetable



FIG. 59.

RINGWORM PARASITE (AFTER FOX).

Such parasitical fungi may be found in the dust of rooms in which a number of children are kept, suffering from ringworm.

particles float in the air, and by direct contact both they and their animal counterparts are conveyed from child to child. Take, for example, the common 'ringworm.' The careless use of other persons' clothing, or indiscriminate employment of combs, towels, and brushes having a doubtful proprietorship, is to be deprecated. In schools these things should be much more carefully attended to than they frequently are.

Want of Cleanliness.—Of 'dirty skin' habits, I presume, I need not here speak. Though the

cleanly man may not be a healthy man, and though the gap in the stages of progressive development from 'cleanliness to godliness' is, in my experience, often a considerable one, still, that unclean and over-loaded skins do not contribute to health I suppose all will admit. That there are millions who drink alcohol in excess, smoke in excess, eat in excess, and cultivate dirty skins, yet who do not appear to suffer, is no argument why anyone should go for days without a thorough washing, or copy the sooty covering of the chimney-sweep. Yet, strange to say, it is the kind of reasoning often used with regard to some at least of the habits here mentioned.

Woman's Influence in matters of Clothing.—A well-known and talented writer a few years since in the 'Fortnightly Review,' having pictured, with forcible language, the *petite santé* of women generally, or at least that portion of womankind included in her definition of Lady, or 'Loaf Giver,' in contradistinction to the perhaps larger class of 'Loaf Gainers,' openly attributed to the medical profession—or, as she was pleased to style us, 'omnipotent doctors'—the odium of bringing ill-health to the great mass of cultivated woman-kind. She was not satisfied with attacking the

medical profession for its apathy in not enforcing on mothers and daughters more stringent rules in matters of dress and diet, but, with characteristic boldness, impeached the entire, or almost the entire, 20,000 practising physicians in this country of 'making work for themselves'—in short, of sacrificing every principle of truth and honour, in order to enrich their pockets and secure fees. Having satisfied herself as to the moral standard of the medical profession, she intimated that she estimates it at much the same value as that of a dishonest slater or plumber who 'mends one hole in a roof, and leaves another.' In short, to speak plainly, this writer's summing up of the medical profession might read thus:—'It is composed of a body of men who, for purposes of sordid gain, will descend even to the deliberate deception and wilful robbery of their patients, and that at the cost of the health, happiness, and life of the unfortunate persons who confide in them.' One might fancy that before she laid this impeachment in print she would have searched for some better proof of her assertions than a worn-out story, which may have just as much of truth or consistency in its details as the remainder of her attack on the medical profession. This writer finds a remedy for all the

medical woman-slaughter which is going on at present in the admission of qualified women to the medical profession. Her 'unwomanly woman' is the 'odious' creature who, even at the pressure of her mother, and with her, goes to consult the 'man doctor.' Strange that, though I have frequently asked women, married and single, old and young, I have never yet been answered in the affirmative to the query—'If sickness came, would you *prefer* a woman doctor?' I have never been opposed to the principle that such women as choose to enter the medical profession should have the means afforded them of so doing. I perfectly agree with her that, 'if women prefer the ministrations of their own sex, they are entitled to have them.' And I regard as most unfair any obstacles that are placed in the way of women embracing the profession of medicine, if they so wish, and if they can find employment, amongst their own sex—not that in so doing I would permit male and female students to study together. Let them have separate schools, hospitals, and classes. But I must confess that I fail to see as clearly as she does that the 'odious young woman' is the girl who, under her mother's guidance, consults her physician, and am inclined to think

that the majority of her own sex will not approve of the girl who walks the general hospital with male students while female cases are examined, and studies her surgery and anatomy on a male subject under the guidance of one of those unprincipled and sordid creatures whom Miss Cobbe abhors. I am not at all so certain that the influence of medical women would be so strongly used, and, if used, that it would correct feminine evil habits to the same extent that a man's influence does. It is by the growth of those maternal impressions which are wrapped up in the gradual development of a woman's nature, that a woman, in the larger proportion of instances, attains to those social qualities which fit her for her place in the human fabric. They are the influences which mould both the physical and psychological nature of a woman. Mentally, in her love of admiration—her regard for physical strength and beauty, her power of dissimulation, her capability of self-sacrifice, the want, as Herbert Spencer says, 'of her power of abstract reasoning, and that most abstract of the emotions, the sentiment of justice, the sentiment which regulates conduct irrespective of personal attachment, her likes or dislikes felt for individuals'—woman widely differs

from man. On grounds of sentiment or pity she decides a question rather than on those of reason and equity. Not but that I fully agree with Dr. Barnes when he says :—‘ It is a shallow saying that women can give no reasons for what they do. They justly claim the privilege of weakness by declining to give one ; they rather incur the reproach of being illogical or unreasonable than wound their sense of delicacy. Woman’s decision, then, is to be respected, not questioned.’ What does our experience of woman’s influence on woman teach us as contrasted with the properly exerted influence of man ? The coming race of medical women will, according to some, correct all the extravagances of the latest fashions, wage a successful warfare against tight-lacing, high-heeled boots, and low dresses. The millennium for women, in all matters of dress and morals, shall have arrived when a special section of the Medical Register has to be reserved for ‘ female practitioners.’ Women will in future dress to please women, and not to please men ; they will be dictated to and influenced for the first time since ‘ Adam delved and Eve span ’ by their own sex, as to how they will dress, eat, drink, kill their time, and fall in love.

Dress.—But if I am thus at issue with the talented essayist on the correctness of her assertion that medical men are principally to blame for the ‘little health of ladies,’ I feel that there was much truth in all which pertained, in the article in question, to health (or hygiene) itself. And though I think she has, in her indignation at the tax imposed by men on women in the matter of dress, and in her anxiety to find a scapegoat for the habits of her sex, grossly exaggerated the action, or rather the inaction, of the medical profession, still I am free to acknowledge that we doctors have a power and influence in the matters of dress, diet, and education not possessed by any other body, the Church not excepted. I wish that her outspoken and fearless denunciation of the follies of woman’s dress and habits was in the hands of every woman of sense and discretion. I am not, however, altogether of opinion that the ‘lords of creation’ are such impediments, as she appears to think, in the way of a healthier tone in the social life of women. If it be true that women dress for the admiration of men, the men must, according to this lady, admire the ugly; for she maintains that it is ‘ugliness’ and not beauty which is secured in the modern dress of women. If women universally

determined to dress with the object of securing the three essentials—'health, 'decency,' and 'beauty'—instead of their antitheses, ill-health, indecency, and ugliness, I do not think that fathers, brothers, sons, and the mass of sensible men who form the 'bread-winners' and 'bread-earners' for the women would demur.

But is it not true that women, ever changeable in their mode of attracting attention and admiration, dress as much to rival other women in fashionable display, in costly clothing, and extravagant jewellery, as to secure the admiration of the opposite sex? The really attractive woman, who can perhaps afford to sacrifice the unpretentious simplicity of attire which best serves to exhibit true comeliness, is immediately mimicked by her less favoured sister. The ugliest woman dresses to rival the most beautiful; the most charming sacrifices to the freaks of fashion many of the natural advantages with which she is endowed. The maxims of Steele, 'that no woman can be handsome by the force of features alone, any more than she can be witty by the help of speech; that pride destroys all symmetry and grace; that affectation is a more terrible enemy to fine faces than the small-pox; that no woman

is capable of being beautiful who is not incapable of being false,' if true as regards the beautiful woman, are surely doubly true of her less fortunate rival.

We can best understand the influence of dress if we look at a milliner's stand used for displaying ladies' dresses, and contrast it with the model of a nude Grecian Venus and compare the hour-glass contraction in the centre of the one with the rounded and full waist of the other. Let us examine in some school of art an articulated skeleton, and notice the narrow cone-like form of the chest above, and the breadth of its walls below, the free space at its base; while the movements of the viscera are controlled only by the yielding abdominal walls. Let us take up one of the feet and examine its bones and articulations; mark the perfect arch of the foot, the necessity for the entire heel as a support, the breadth of the bony parts in front. Let us squeeze in the floating ribs, changing the natural cone-like form of the chest; then imagine the viscera, liver, and stomach, occupying partly the lower, and now contracted portion of the cavity, pushed together and out of position, displacing upwards the lungs, and interfering with the natural movements in respiration; now

think of the heaving of a woman's bosom as she breathes, shewing the full play required for these lungs encroached on by the abdominal and pelvic viscera, which are huddled together by the unnatural contraction in the centre of the body of our animated hour-glass. Let us clothe in

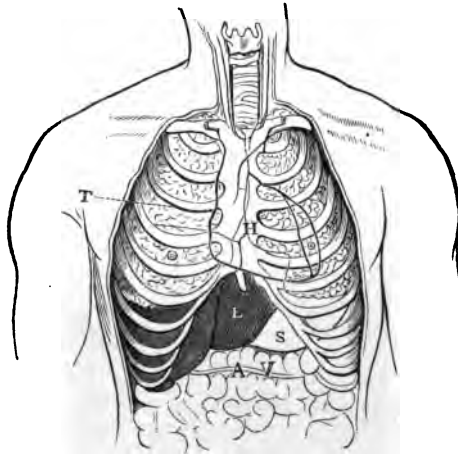


FIG. 60.—THORAX, NATURAL SHAPE, SHOWING POSITION OF THE LUNGS AND VISCERA (AFTER GRAY).

T, Thorax; H, heart; L, liver; S, stomach; A V, abdominal viscera.

imagination the skeleton foot with the soft parts, muscles and skin, and place this beautifully contrived support in the vice of the modern high-heeled instrument of torture, which grasps the foot, compresses the bones until these are distorted, destroying the natural arch and producing de-

formity; which causes arrest in the circulation of the tissues, coldness in the feet, and congestion of other organs even so remote as the human eye; which alters the normal line of support of the body, brings on deformity in the spine and pelvis, weak ankles, and crooked legs. But the effect of the present high-heeled boot also is to raise the heel some two inches above the plane of the toes. This produces contraction of the calf muscles, and finally a variety

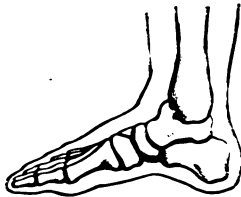


FIG. 61.—NATURAL ARCH OF FOOT.



FIG. 62.—POSITION OF FOOT WITH HIGH-HEELED BOOT.

of talipes, or deformity of the foot that prevents it from again being placed perfectly flat on the ground. We can have thus some idea of the consequences which follow on narrow waists and high-heeled boots. Think, again, of the free open space wherein plays loosely twenty-five feet of tubing, and where every organ has its place and limit, and fancy this encircled in the tightly-laced stays, which press down with force all the viscera that should have ample

space to move, and can we wonder at congestion of all these organs being so frequently met with? No language would be too forcible to impress on mothers the direful consequences that often follow in married life the injurious habits of clothing, and those distortions of the spine and pelvis acquired during that period of life when a girl's bones are finally consolidating, from the years sixteen to twenty-two.¹

We need not be astonished at the incomes made out of the follies and fashions of women. It is not saying too much to assert that many of the ailments and sufferings, for which women require the assistance of the physician and the gynecologist, are induced by the habits of dress to which they are the slaves.

Nerve Mimicry.—The neuromimetic, with curved

¹ It is most important that women should recognise the injurious consequences which result from the suspension of a heavy weight of clothing from any comparatively tight girth carried round the waist and above the hips. The shoulders afford the proper means of support. The weight supported by the hips should be distributed between these and the shoulders. Particularly should this be borne in recollection in the clothing of young and growing girls. The principle is carried out in many of the 'combination' suits of underclothing now made. In like manner the petticoats should be comfortably suspended by braces. 'Garter braces' should take the place of the elastic band, which in many cases acts like a ligature on the limb, predisposing to varicose veins in the legs, and cause numbness and arrest in the circulation.

spine, pain in joints, inability to walk, contracted limbs, fits, neuralgias, aches in every part of the body—all well known to medical men as spurious diseases, so-called hysteria—is the outcome of the congested liver, the dislocated womb, the disordered stomach, the morbidly supplied brain. If men encourage the vagaries and eccentricities of women in dress, they pay dearly for it afterwards in the neuromimetic mother and wife. When a girl with blood impoverished and thin, and with palpitating heart, whirls breathless about in the dance, in rooms which are filled to overflowing, as is the modern custom, and draws in an atmosphere surcharged with carbonic acid and animal exhalations, she little dreams of some of the future penalties she will pay for the fleeting pleasure. No wonder if she soon becomes pale and green like the blood flowing in her vessels, and early shows that pallid and worn look which the increased cares of married life rapidly develop.

Essentials in Children's Clothing.—The essentials to be fulfilled in *clothing* are warmth, and sufficient looseness for gentle friction and the movements of the limbs. I have only space to say a few words on some habits affecting these. The tight swathing of infants, the scanty clothing of children,

the neglect of protecting the chest and abdomen of the infant with flannel, the want of attention to the feet, which should always be kept warm, the cramping of the child's foot with a small boot or shoe—these are the habits which lead in early life to impeded respiration, croup, bronchitis, and other troubles. Deformity of the feet and toes, and the troublesome affection called ingrowing toe-nail, result from tight shoes. Judicious attention to the temperature of the nursery and the bath, flannel loosely worn next the skin, sufficient exercise, and simple diet, would save many a father's pocket and a child's life. The nursery in which children are kept is often neglected; in a word, it should be airy, have plenty of light, be well ventilated and dry. Overcrowding of cots and exclusion of light are, above all things, to be avoided in the nursery.

Sleep.—Children should have sufficient *sleep*. Both women and children require more sleep and rest in the horizontal posture than men. Keeping children up late, or disturbing them out of their sound sleep in the mornings, is hurtful to their nervous systems, and deprives them of the repose necessary for the growth of their muscles and bones, and that physiological rest which the active brain of the child requires. As a rule, men sleep a great

deal too much. Much depends on the idiosyncrasy of the individual, and the physical fatigue undergone. But I fancy that from six to eight hours is sufficient for most men. Anything further than this only tends to habits of indolence.

Exercise.—It may be well to remind readers of the following precautions as regards both the amount of exercise and the times of taking it. It is not good to exercise immediately after a meal. Pain in the side, dizziness, faintness are apt to follow. Any violent exercise leading to perspiration and heat of skin should not be had before bathing—congestion of the internal organs is likely to follow such imprudence. Exercise¹ to the point of physical exhaustion or overtire is bad for many people with weak digestion, or those who suffer from weak heart action. Walking up inclines, running upstairs, climbing mountains, are always to be avoided by those who have weak hearts and who suffer from palpitation. Outdoor sports and pastimes are far preferable to gymnastic exercises. Yet indulgence in such games as cricket, tennis, fives, football, need not preclude a suitable

¹ Hip affection and permanent lameness, if not loss of life, have frequently been brought on by lying on the grass, damp with dew, after exercise. Such risk is frequently run after cricket.

resort to the gymnasium. Especially for young girls are such outdoor amusements as tennis and cricket useful. But they must not be overdone. And for many growing girls, especially those with delicate constitutions, exhaustive and too violent exertion is most hurtful. Horse exercise is good for most people; most serviceable is it for men who have to spend a large proportion of their time in some sedentary occupation, professional men, authors, merchants, and business men generally. For such also the tricycle or bicycle is strongly to be recommended, if not otherwise contraindicated. Football, while it is a healthful and invigorating game, is not to be recommended for many boys with delicate frames, and those who have from any cause, as rheumatism or impoverished blood, a tendency to weak heart action. Cricket is to be preferred, and tennis. Moderate rowing is, perhaps, the most perfect form of exercise for young people; but this likewise may be carried to excess, and many lads have laid the seeds of future heart and lung mischief by the combined effects of training and racing. Such violent exercise must be cautiously ventured on by those in whose families consumption is hereditary. The same remark applies to running. In fact, all these forms of

exercise are healthful or otherwise according to the type of constitution and temperament of the individual. Hence the danger of the rule, if made a general one in public schools, which compels a boy to join in some particular game at certain seasons of the year. For the large proportion of boys such a rule may be commendable; but there must always be a per-centage of growing lads for whom this or that game, for a variety of reasons, may be most prejudicial. Parents would do well to consult their family physician in any doubtful case before permitting the rule to be enforced. I cannot avoid here entering a protest against the almost brutal manner in which the modern game of football is at times played. The result is an annual string of casualties, many of them resulting in loss of useful limbs for life, and permanent maiming of the sufferers. I refer specially to this abuse of a splendid exercise, as I have known some sad instances of promising careers blighted by football. Finally, I would refer to the great advantage derived by girls, as well as lads, from the use of the gymnasium and gymnastic exercise.¹ If not near any gymnasium, every girl can have

¹ The German Gymnastic Institute at King's Cross is not surpassed, if equalled, by any in the United Kingdom, both in its apparatus and system of instruction.

in her own home a trapeze on which she can practise for a short time daily. The dumb-bell exercise is not to be taken in many instances without advice. These and clubs are most admirable means of developing the muscles of the chest and arms. For a young girl with weak spine, the inclined plane devised by Mr. Adams is an admirable method of strengthening the weak muscles. The person can draw himself up by means of a rubber accumulator, as seen in the figure. A light dumb-bell may be worked in the



FIG. 63.

horizontal posture. One more protest, and I have done: it is to call the attention of parents to the reckless manner in which nurses and nursery-maids of the day knock young children and infants about, and the cruel manner in which they expect the child to keep pace with them in walking. *I have no doubt that many a case of hip or spinal affection has arisen, unsuspected, in this way.*

CHAPTER VI.

A FEW HINTS ON DIET, WATER, AND THE USE OF
ALCOHOL AND TOBACCO.

Irregular and Heavy Meals.—I can only refer to a few matters in connection with habits of *diet* which are injurious to health. And, first, I would notice *irregular meals*. The longer the time between meals, the larger must the meal be to support the body during the interval.

Remembering the constant demand of the tissues for fresh supply of nutrient fluid ; the never-ceasing new birth of tissue occurring in every part of the body ; the craving of the idle stomach to meet this interchange ; the injurious action of a secretion which is poured out in definite quantities for the digestive process, and which, if the stomach is empty, has to react on the tissues which secrete it ; we see some good reasons why the stomach should not be left for any length of time without food.

The brutes that chew the cud are *always* slowly and leisurely eating, thus whiling the weary hours away; when not consuming fresh material they are re-attacking the old. They pass their time betwixt food and sleep. Some human beings, not far removed from these in the scale of intellectuality, do the same.

The gourmand crams his stomach, and then ensues the lethargy which ends in sleep. Happy only when eating or drinking, he carries on him his unwieldy fat, and loads all his internal organs with the unutilised carbon which hangs in fringes and lies in ridges about them. He overweights his heart, so that it falters at its work, and palpitations distress him; his lungs cannot burn off the carbon with which his blood is charged, and his breath is short and hurried; his brain so occupied in controlling the involuntary motions and morbidly active secretions at work in his body, and itself burthened with oily material, manifests its purely automatic function in the sensual expression of his features.

As ordinary meals are digested and leave the stomach comparatively empty in about five hours, three meals daily are amply sufficient to supply one's wants in health, and those must be mixed meals—*not eaten to satiety; not eaten hurriedly; not eaten while*

the brain is being worked by study ; not drenched with fluid ; not eaten with a body and mind exhausted by overwork and prolonged abstinence, as is the habit of many of our business men, who leave home after an early breakfast to remain all day without food. Any such habits are most injurious to health.

Times of Meals.—If breakfast be taken early in the morning, a light luncheon should be had at one or two o'clock, or if a substantial meal is preferred then, the stomach should again have something to do at six or seven, and nothing in the shape of supper should be eaten late, though it may be prudent to have a very light and digestible meal, when a late dinner is not taken, an hour or so before going to bed. Heavy meals after long intervals of rest are not easily digested, neither are late dinners, with their many courses—soup, fish, rounds of *entrées*, joints, several kinds of vegetables and sauces, all floating in a liberal potation of hock, sherry, and champagne, followed by heavy puddings, laden with fat, to be immediately congealed by ices, now mingled with apples, pears, raisins, and nuts, to be again set floating in quantities of claret or port, and then the entire capped with hot coffee, cream, and sugar—finally, the soothing and

narcotising influence of the tobacco fumes, as an antidote for the stimulating wines and coffee which have gone before.

Little need we wonder if gout, gravel, torpid and fatty livers, diseased and fatty kidneys, palpitating hearts, dyspepsia, and all sorts of indigestion are prevalent, and that visits to Continental and English spas are considered indispensable to the health of the fashionable man.

Exertion after Food and Sleeping after Meals.—

Great exertion immediately before or after meals is bad; the dinner after a hard day's exercise should be light. The stomach must have time to recover from any exhaustion of the system, as must also be permitted to digest its contents. *Sleeping after meals* for a long or short period is not, on the whole, a good habit. The stomach ill digests during sleep. 'However agreeable it may be,' says Dr. Pavy, 'to gratify the desire for a nap, if there is danger of its passing into a lengthy and heavy sleep, it is well to have recourse to some light mental or bodily employment, some game of amusement, . . . but with the natural state of things, there should be no strong desire for sleep after a meal. If there be such, it may be concluded some fault exists;' there has been 'too

excessive' a meal, 'too prolonged' a fast, or an impaired digestion.

To be avoided by Dyspeptics.—*All fatty matters, pastries, cheese, saccharine vegetables, sugar, fermented drinks, large quantities of cold or too warm drinks, quantities of tea and alcohol, as a general rule, must be shunned by the dyspeptic, as everything else that the individual experience of each person tells him habitually disagrees with him, and which produces flatulent distension or pain.*

Some people fancy that they are abstemious in diet if they relinquish wine and alcoholic drinks, and avoid after-courses, while they consume enormous quantities of meat. It is often this *excess of meat diet* which brings gout and other troubles.

Speaking generally, the following articles of food should not be partaken of by gouty persons and dyspeptics:—

Hot and heavy soups	Much butter
Sauces	Cream
Pickles	Fats
Spices	Saccharine vegetables
Pastries	Much potato
Jam	Rhubarb tart
Potted and preserved meats and fish	Raw vegetables (salad and watercress an exception)
Potted and preserved fruits	Such saccharine fruits as
Cheese	grapes, pears, plums

Raw celery	Fresh bread
Pork	Hot buttered toast
Veal	Cider
Salted meats	Sherry
Over-boiled meat	Port
Lobster	Liqueurs and effervescing
Crab	wines
Hard-boiled egg	Beer

Great draughts of cold water should be avoided at meals.

Tea and Coffee.—Strong tea, particularly the green variety, if taken in quantity, and especially at night, may act most injuriously. It, at times, causes great excitement of the nervous system, irregularity in the heart's action, palpitation and other unpleasant symptoms, such as sleeplessness and headache. The simple advice to give up the use of tea is often, when acted on, followed by the disappearance of a host of alarming symptoms, especially in women. The same remark applies to strong coffee, only in a more marked degree. Coffee should be taken in the form of *café au lait*. Cocoa, if not too fat for digestion, may be substituted; made from nibs it is still better. But I should be sorry to say anything which would depreciate the value and benefit of these useful, sustaining, and exhilarating beverages, which are the greatest boons to toiling human nature the

vegetable world has produced. It is to their abuse, and to the necessity for caution both as regards their strength and quantity in the case of the person with an irritable stomach and nervous system, I would draw attention.

Alcohol: its use.—It is obvious that I can only make a passing allusion to *alcohol*. A great deal of absurd nonsense has been both written and spoken concerning alcohol. I am not one of those who believe that to take alcohol under any circumstances, or in a moderate quantity, is a bad habit, for I do not think it is. It may be better that many should not take it. For some it is undoubtedly hurtful to drink any alcohol; for the great majority of people in health, I believe that it is an unnecessary luxury. It is one of our most useful and indispensable of medicines; it has a great value in a dietetic point of view with some individuals. What physician is there in large practice who has not seen life sustained, in certain forms of uncontrollable sickness, when nothing else could be retained, but small quantities of dry champagne iced, or the spoonful of old brandy given occasionally? Eleven years' experience in a large fever hospital enables me to speak with some weight on alcohol as a medicine. It is, in my opinion, our most

valuable medicine in fever. I refer to its judicious administration, in proper quantity, at the right moment.

Its Abuse.—Altogether different is it when I come to speak of its abuse. I may summarise what the *abuse* of alcohol does to our organs and tissues. It destroys the minute cells, fibres, and vessels of the brain and spinal cord, leading to hardening or softening of the tissues, results followed by insanity, general or partial paralysis, apoplexies, epilepsy, and such hereditary diseases in the offspring as idiocy, imbecility, paralysis, and epilepsy. It nurses the hysterical, and increases the fanciful ills of the hypochondriac. It congests and overloads the liver, spleen, and kidneys, leading to engorgement of their tissues with unhealthy blood, bringing on either permanent enlargement, or, at times, a shrinking of the organ, and the 'gin-drinker's' liver and the waxy or glandular kidney of Bright are the results. It causes blindness, impairment of hearing, and noises in the ear; gives to the face and skin a waxy look and death-like pallor, and is the cause of many troublesome and inflammatory affections to which it is subject. It induces in men in their declining years many of the sufferings which make the evening of life

a scene of torture and misery. It brings, by its action on the muscles, the uncertain tread, the tottering gait, the stammering speech, the wasted limb. It helps to fill lunatic asylums with the insane, paralysed, and idiots; reformatories with the youthful votaries of vice; gaols with criminals; workhouses with paupers, and the columns of the daily press with the murders and suicides committed under its influence.

Tobacco.—As to the practice of smoking, the practical common sense rule must hold good, that those who find its effects injurious should at once relinquish it. As is the case with alcohol, it is the excessive use of tobacco that generally injures. Certain constitutions are readily hurt by its effects. Some fight against the instinctive warnings of nature, and educate the system to its use. As a rule, this is prejudicial, and may be dangerous. It is surprising how long the heart will sustain the toxic effects of nicotine. I know, personally, some men whose heart's action has been most irregular for years, and yet who smoke an enormous quantity of tobacco, either in cigarette or cigar. Sir Henry Thompson's suggestion to place cotton-wool in the cigarette mouthpiece is of value. The volatile oil is thus prevented from entering the mouth with the

fumes of the tobacco. His reminder, that Orientals do not smoke more than half of a cigarette with the same object, should not be forgotten. Again, with various heart affections, nervous disorders, and with many dyspeptics, and in other constitutional states, tobacco is decidedly injurious. It manifests its action chiefly on the nervous system. Many sudden deaths have occurred from the practice of smoking, when indulged in by young lads, especially in America. Physicians know of a functionally affected heart, weak, palpitating, irregular, resulting from tobacco and known as the 'Tobacco Heart.' Nausea, languor, great pallor, in some constitutions follow the use of the pipe. Persons with such should never smoke. This may be, and most men would doubtless consider it, a great deprivation. But even at the loss of so agreeable a companion in hours of depression and solitude, to abstain from smoking is better. Its effect on the eye I have already alluded to. Once the influence of tobacco is felt in the palpitating heart, the sick headache, the impaired vision, the sooner its use is *totally* relinquished the better. On the other hand, we find with many restless and irritable temperaments that tobacco has a most beneficial effect. Its sedative and

controlling influence over the brain and nervous system is best exhibited, when the habitual pipe is not to be had—say morning and evening—in the natural, almost inappeasable craving the want occasions. That it is individual temperament we must consider in answering the question ‘Is smoking injurious?’ is proved by the prolonged and healthful lives of millions who, for over half a century, have not been even ‘moderate’ in the use of tobacco.

Water.—Those who this year (1884) have visited the Health Exhibition at South Kensington, and examined the various kinds of food, animal and vegetable, there arranged according to the relative proportions of albumen, fibrine, fat, saccharine matter, water, &c., which they contain, must have been at once struck with the large amount of water present in nearly all of them. When we remember that 75 per cent. of the muscular tissue of the human body, and over three-fourths of the entire blood contained in it, are composed of water, we see the importance of this relation between the water we consume both in and with our food, and the fluids which are secreted in and excreted from the tissues of the body. This refers to the *quantity* of the water we partake of in the

twenty-four hours. But of greater moment still is its quality. Now that the temperance movement has made such considerable progress among all ranks of society, and that so large a number of recruits have joined the Blue Ribbon ranks, the number of pure water drinkers has proportionately increased. I should be sorry to say a word to discourage this most philanthropic and unselfish movement. On the contrary, it has my warmest sympathy. But I must just remind those who are 'Blue Ribbon' soldiers, and who would press others into the ranks, that the consequences of total abstinence in some constitutions are at times most hurtful if it be strained beyond the limits of prudence and in the face of medical advice. What I am more concerned with here is the neglect which even still generally prevails in procuring pure water for drinking purposes. In these days, when so much is known of the organic impurities of drinking water, both river water (as that of the Thames) and the water in wells, it is a matter for more than surprise, that so great neglect and carelessness, almost to the verge of recklessness, should prevail in regard to water supply and filtration. These are too extensive questions to enter upon here. It is not necessary to remind readers of

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The fact that such diseases as cholera, typhoid, dysentery, scarlatina, typhus fever, typhoid fever, and cholera, as a rule, may be due to the introduction of impure water, and the contact of contaminating impure matter with the mucous membrane, or the carrying of minute organisms, as bacteria and bacilli, into the system. The pollution of rivers or streams with animal refuse, and the water of wells and cisterns with decaying and putrefying vegetable and other matter, has caused many a fatal epidemic. Dr. Koch, whose recent researches into the cause and spread of cholera, and the behaviour under varying influences of the special 'comma bacillus' found in the blood and secretions of those attacked with this disease, has shown how decidedly the presence and spread of cholera are affected by the water supply in the different districts and towns of India. So important and interesting is this matter, as bearing not alone on cholera but other infectious diseases, that I quote a few sentences from Dr. Koch's recent address before the Imperial German Board of Health in Berlin :—

'One of the commonest ways of spreading the infectious material, of which, too, we have had an example in the tank epidemic, is water. How easily can cholera-defoeta or water used for cleaning cholera-linen get into

wells, public watercourses, and other places for the supply of drinking-water and of water for household purposes! Thence the comma bacilli find plenty of opportunities of returning into the human household, either in drinking-water or in water used for being mixed with milk, for cooking, for rinsing pots and pans, for cleaning vegetables and fruit, for washing, bathing, &c.

‘Besides these ways, the infectious matter can enter the human digestive organs by a shorter way; for comma bacilli can, beyond a doubt, retain vitality for a considerable time on articles of food which have a moist surface, and it can easily be supposed that they are not rarely brought thither by being touched with dirty hands; and I do not consider it at all impossible that the infectious matter is transferred to food by means of insects—for example, by common flies. In most cases, certainly, the infectious matter enters the soil with the dejecta, and finds its way, somehow or other, into wells or tanks.

‘There remains still the important question to be answered, whether the infectious material can reproduce or multiply itself outside the human body. I believe that it can. As the comma bacilli grow on a gelatine plate, as they can grow on a piece of linen, or in meat broth, or on potatoes, they must also be in a position to grow in the open air, especially as we have seen that a comparatively low temperature enables them to develop. I would not certainly assume that the multiplication of the comma bacilli outside the human body

takes place in well water or river water without any assistance, for these fluids do not possess that concentration of nutritious substances which is necessary for the growth of the bacilli. But I can easily imagine that, although the whole mass of the water in a tank or reservoir is too poor in nutritious substances for bacilli to flourish in it, yet some spots may contain sufficient concentration of nutritive substances—for example, those spots where a gutter, or the outlet of a cesspool, opens into the stagnant water, where vegetable matter, animal refuse, &c., lie, and are exposed to putrefaction by bacteria. At such points a very active form of life can develop.

‘I have often formerly made such experiments, and it has often happened that a water contained almost no bacteria at all, whilst remains of plants, especially roots or fruits swimming in it, teemed with bacteria, especially kinds of bacilli and spirilla. Even in the immediate neighbourhood of these objects the water was rendered turbid by swarms of bacteria, which clearly received their nourishment from the nutritive matter scattered by diffusion at a very small distance.

‘I think that we can in this way most easily explain the relations of subsoil-water to the spread of cholera. Everywhere where water is stagnant on the surface or in the ground, in marshes, in harbours which have no outflow, in places where the ground is trough-shaped, in very slowly running streams, and such like, the conditions described can develop. There, in the neighbourhood of animal and vegetable refuse, concentrated

nutritive solutions will be most easily formed, and will give the micro-organisms opportunity for forming colonies and multiplying. On the other hand, wherever the water at the surface as well as at the bottom is in a state of rapid motion, and subject to continuous change, these conditions are less easy, or do not occur at all; for the continuous flow of the water prevents the formation of a local concentration of nutritive substances in the liquid sufficient for pathogenic bacteria. The connection between the falling of subsoil-water and the increase of several infectious diseases I would explain as follows; that, when the subsoil-water falls, the current that takes place in the subsoil-water is much less significant. Besides, the quantities on the surface are much diminished, so that those concentrations, which I assumed to be necessary for the growth of the bacteria, must much sooner take place.

‘The influence of the water supply has been more plainly shown at Fort William, which is situated on the Hooghly, almost in the middle of the town. The fort itself is not drained; and, owing to the distance from the nearest town drainage-pipes, cannot be influenced by the town drainage. The condition of the subsoil-water must be the same as when the fort was built. Formerly the garrison suffered severely from cholera every year; but some years ago the attention of the officers was drawn to the drinking-water; it was kept as much as possible free from pollution; and since then cholera has perceptibly fallen off. Thus the fort received a reliable water supply at the same time as the

town did, and since then cholera has disappeared from the fort. This case can serve as a normal experiment, in which all conditions have remained the same except the drinking-water. If cholera do not invade the fort any more, the fact can only be attributed to the change of drinking-water.

‘ There are also similar, if not so decisive, examples of the influence of drinking-water on cholera in other Indian towns. In Madras the cholera has fallen off significantly since the introduction of waterworks. The same is true of Bombay. The condition of Pondicherry in this respect is especially interesting. Cholera was formerly very prevalent in this town ; some years ago artesian wells were introduced there, having a depth of from 300 to 400 feet, and from this time cholera entirely disappeared from Pondicherry ; but last spring it was suddenly reported that the immunity of Pondicherry, which had been accepted as certain, had been shown to be untenable, as cholera had again broken out there. In consequence of this I applied to Dr. Furnell, of Madras, who has specially occupied himself with the relations of cholera in Pondicherry, and has always traced it, and received from him the information that a number of cases of cholera had indeed occurred in Pondicherry, but exclusively in those portions of the town which are not yet supplied with artesian wells.

‘ If I have cited to you here some examples in favour of the advantage of a good provision of drinking-water, I need not, after the details I have already given, assure you that I am not a supporter of the exclusive drinking-

water theory. I should like to avoid touching every point of view which is one of principles, but I think that the ways in which cholera can spread in a place are extremely diverse; and that, as almost every place has its own peculiar conditions, which must be thoroughly searched out, the measures which are of use for protecting the particular place from the pestilence must correspond to these conditions.'¹

I have thus specially instanced cholera in its relation to our water supply in order the more pointedly to give effect to the advice—*attend to the domestic supply of water, both in regard to its source and any possible means of outside or house contamination.* It must be remembered that purity of source and perfect means of distribution are the primary objects to be secured; boiling, disinfection, and filtration are most valuable aids for destroying or excluding organic matter, but cannot be solely relied on. Every house, however, should have a reliable filter. I know of none to surpass that of Mr. Maignen, a drawing of which, complete and in section, I figure on next page. A most convenient portable or pocket filter may be had of the same maker.

The excellence of these filters is, perhaps, best attested to by the fact that the Government have

¹ *British Medical Journal*, September 6, 1884.

just supplied the expedition up the Nile with a large number (800) of them for the use of the troops. The following description explains the construction of the filter (fig. 65):—



FIG. 64.—BJOU FILTER
(MAGNEN).

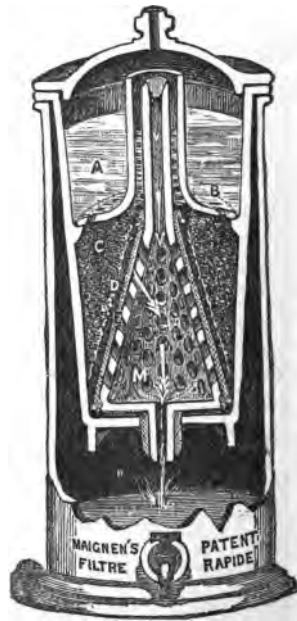


FIG. 65.

'r is the reservoir for the filtered water. It is accessible for cleansing, as the filter case proper simply rests loosely on it. m is the filtering frame, covered with asbestos cloth e, tied with asbestos

cords. *d* is a layer of *powdered* filtering medium—Maignen's Patent Carbo-Calcis—deposited automatically by being mixed with the first water poured into the filter, as shown in Fig. 65. *c* is *granular* carbo-calcis put in loosely to fill all the available space between the layer of *powdered* carbo-calcis and the screen *b*.

'The water, being put into the filter, goes first through the *granular* carbo-calcis, then through the layer of *powdered* carbo-calcis and the asbestos cloth, issuing into the hollow filtering frame *m* in a most minute state of division. The course of the filtered water is shown by double arrow; it meets with pure air (shown by LL, drinking cups; *b*, washer in filter-frame; *c*, screw-nut to secure frame into filter case; *d*, screw cap to hold the filtered water in, when not in use. single arrow) which has been filtered through a plug of cotton-wool, and it falls (shown by treble arrow) perfectly pure and aërated into the reservoir *R*. It will be seen that this new filter differs entirely from anything which has ever been introduced before, and that the water is not only purified, but

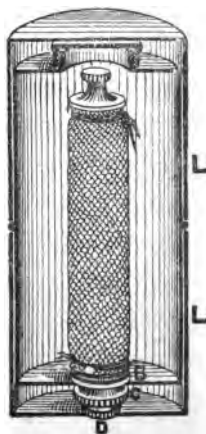


FIG. 66.—PORTABLE FILTER OF MAIGNEN.

also oxygenated and rendered brisk and pleasant to drink.'

From personal use of this filter I can most strongly recommend it. Full instructions are sent with the filter. It is most simple in construction, can readily be cleaned and always renewed. It is very inexpensive. It is claimed for it 'that no animalcula, bacteria, or bacilli can pass through the barrier,' and that 'it takes up iron, lead, or sewage in solution, removing ammonia and sulphuretted hydrogen.'

Hard Water.¹—Persons affected with gout should not drink water from chalky districts, nor those in which there is much iron in the soil. The same remark applies to dyspeptics and persons who are troubled with renal affections, and, as a rule, to persons who suffer from affections of the skin.

¹ Messrs. Maignen supply an 'Anti-Calcaire' powder, a small quantity of which has the property of completely removing the hardness from water, and which can be used with their filter.

CHAPTER VII.

A WORD ON EDUCATION.

The Brain.—As having an important influence on all our organs, a word must be said, in conclusion, of this, the worst treated of any of them—namely, the brain. How seldom do we think what this delicate mass of tissue we so glibly talk of as ‘our brain’ is composed of, and what it really is—the mysterious way in which it grows, develops, begins to think; how it stores its knowledge, gains retention, acquires the power of memory, gathers force for the imagination, strength for the faculties—in short, how, in these few ounces of fatty cells and fibres of the brain of a human child, all that potential energy is stored up, and with it the elements of the reasoning power and the germs of good or ill conduct of the future man!

Early Cram.—Then let us think on our modern systems of early cramming; the unnatural forcings of a precocious intellect, the mad desire for an

early and successful college entrance, the close and confined schoolrooms, terror-inspiring canes, and lengthy hours of study. How often can we not call to mind early promise ending in disappointment, the break-down in the health of the child with overwrought brain, the boy with weakly and unhealthy frame, the girl a victim to consumption. I can conceive no more certain plan for the physical ruin of thousands of the youths of a country than that system of capitation fees from results of examination according to the ages of the candidates. Take, for example, the intermediate education system in Ireland, the disastrous results of which I have witnessed in sad instances of sight destroyed and death from chest and heart affections induced by over and premature study. A child between the ages of thirteen and sixteen enters to compete for exhibition, or to pass in some ten subjects for the junior grade. This includes English history, geography, grammar, composition, the storing away in the memory of some thousand lines of poetry, French, Latin, Greek, Euclid, algebra, arithmetic, natural science, experimental physics, bookkeeping. This system may give us smart and sharp wits at a prematurely early age, but it is not likely to give us

thinkers, or even the most successful men of the world. After nearly twenty years of constant teaching in a large school of medicine, and some years of experience as a University examiner, I have come to the conclusion that for future success in life the test of early examinational proficiency is a most fallacious one. The human hothouse plant flourishes well while in the artificial forcing atmosphere of the University; it quickly fades, and is frequently never heard of when subjected to the harsh friction of competition that follows in the struggle for existence with the keen wits, hardened and sharpened in the battle of life. Far different is the result of gradual training, of slowly acquired scholarship, of sound technical instruction, of a practical knowledge of the physical sciences gained after a solid preliminary and general education. Here we have the true development of the faculties; the most certain road, if proper physical exercise and mental recreation in healthful outdoor sports be encouraged and even insisted on, to the 'Mens sana in corpore sano.'

Brain Waste.—But, if the brain of youth will not bear overstrain any more than that of the grown-up man or woman, so will it not well tolerate the disuse which leads to an arrest of development, an abey-

ance of all its intellectual functions. Idle habits in the boy, and foolish ones in the girl, will not correct this tendency of the brain without control to run riot in the wanton pursuit of pleasure. Trashy novels, education in matters of dress, manners, and etiquette, mere accomplishments, do not give to the brain of the man or woman that healthful employment which tends to their intellectual development. The late James Hinton has said:— ‘The torpid unhealthy frame and languid circulation of the idiot are but an exaggerated instance of the unnatural torpor to which he condemns himself who wastes his life in indolence, or consumes it in dissipation. To him nature, indeed, has been kinder, but he does but abuse her bounty to become a worse enemy to himself. . . . And were it a mere extravagance to ask whether some part of the lassitude and weariness of life, of which we hear so much in our day, might be due to lack of mental occupation on worthy subjects, exciting and repaying a generous enthusiasm, as well as to an over-exercise on lower ones?—whether an engrossment on matters which have not substance enough to justify or satisfy the mental grasp be not at the root of some part of the maladies which affect us? Any one who tries it soon finds out

how wearying, how disproportionately exhausting, is an overdose of 'light literature,' compared with an equal amount of time spent on real work. Of this we may be sure, that the due exercise of brain—of thought—is one of the essential elements of human life. The perfect health of a man is not the same as that of an ox or a horse. The preponderating capacity of his nervous part demands a corresponding life.'

APPENDIX.

SUMMARY OF SOME OF THE PRINCIPAL FOREIGN AND HOME SPAS, AND HEALTH RESORTS.¹

(The nature of the water is roughly given, and the situation.)

SPAS.

Name	Use and Character of Water	Situation
<i>Affections of the Skin.</i>		
Aix-la-Chapelle	Alkaline and alkaline earths; also sulphates	Rhenish Prussia
Aix-les-Bains	" "	Savoy
Barèges	Sulphurous	Hautes Pyrénées, France
Harrogate	Various sulphur spas; also iron and saline	Yorkshire
Kissingen	Saline (chlorides) . . .	Bavaria
Kreuznach	Saline; strongly iodized; mud baths . . .	Rhenish Prussia
La Bourboule	Highly arsenical	Puy de Dôme, France
Lisdoonvarna	Sulphur, &c.	Ireland
Marienbad	Saline (with iron) . . .	Bohemia
Tarasps	Sulphates and alkaline	Lower Engadine
Vals	Alkaline and alkaline earths (bicarbonates); various spas	France
Vichy	" "	Central France

¹ The author by no means intends this list as a complete one. It contains most of the important European health resorts, but necessarily does not include several widely known spas and resorts.

SPAS—*continued.*

Name	Use and Character of Water	Situation
<i>Liver.</i>		
Aix-la-Chapelle . . .	Alkaline and sulphates	
Bath	" "	Somersetshire
Bilin	Alkaline (carbonates) .	Bohemia
Buxton	Various spas	Derbyshire
Carlsbad	Alkaline; soda salts . .	Bohemia
Cheltenham	Various spas	Gloucestershire
Ems	Alkaline	Germany
Harrogate		
Homburg	Alkaline, with iron and sulphur	Central Germany
Kissingen	Saline (chlorides)	
Lisdoonvarna	Sulphur, &c.	Co. Clare (Ireland)
Marienbad	Saline (with iron)	
Strathpeffer	Sulphur and sulphates, &c.	Ross-shire
Vals	Alkaline and alkaline earth (bicarbonates); various spas	
Vichy	" "	
Wiesbaden	Saline (chlorides) . .	Nassau
<i>Urinary Organs.</i>		
Carlottenbrunnen . .	Chalybeate	Silesia (whey cure)
Carlsbad	Alkaline; soda salts	
Contrexville	Alkaline	Vosges, France
Ems	Alkaline	
Harrogate	Various sulphur spas; also iron and saline	
Homburg	Alkaline, with iron and sulphur	
Kissingen	Saline (chlorides)	
Manheim	Saline	Near Frankfurt
Vals	Alkaline and alkaline earth (bicarbonates); various spas	
Vichy	" "	
Wildungen	Alkaline	Waldeck

SPAS—continued.

Name	Use and Character of Water	Situation
<i>Glandular Organs (Strumous Affections).</i>		
Bonnes	Sulphurous	Basses Pyrénées
Kreuznach	Iodised ; chlorides	
Leamington	Chlorides	Warwickshire
Leuk	Sulphates, &c. . . .	Switzerland
Marienbad	Alkaline	
Sankt Moritz	"	Switzerland
Tarasp	"	"
<i>Special for Impoverished Blood.</i>		
Bath	Ferruginous	Somersetshire
Franzenbad	"	Bohemia
Pymont	Ferruginous	Waldeck
Schwalbach	"	Nassau
Spa	"	Belgium
Stahlbrunnen of Homburg	"	
Tunbridge Wells	"	Kent
Vals	"	
<i>Special Affections of Women.</i>		
Adelheidsquelle	Salts, with iodine and bromine	Bavaria
Bourboule	Highly arsenical	
Ems	Alkaline	
Kissingen	Saline (chlorides)	
Kreuznach	Saline ; strongly io- dized ; mud baths	
Neundor	Sulphates and saline .	North-west Germany
Pymont	Alkaline and sulphates	
Schwalbach	Ferruginous	
Woodhall	Bromine and iodine	Lincolnshire
<i>Aperient.</i> —Of the simple aperient waters the most useful are— Friedrichshalle, Pullna, Hunyadi Janos, Carlsbad, Victoria.		
<i>Joints, Rheumatism, &c.</i>		
Aix-la-Chapelle	Alkaline and alkaline earths	
Aix-les-Bains	Alkaline and alkaline earths, and sulphates	

SPAS—continued.

Name	Use and Character of Water	Situation
Baden	Saline and sulphurous	Near Vienna
Baden-Baden	Special lithia waters— saline, chlorides	
Barèges	Sulphurous	Hautes Pyrénées
Bourboule	Arsenical	
Buxton		
Droitwich	Brine baths	Worcestershire
Eaux-Chaudes	Sulphur springs	Basses Pyrénées
Kreuznach		
Lisdoonvarna		
Manheim		Near Frankfort
Mont Dore	Alkaline	Puy de Dôme
Strathpeffer	Sulphurous, &c.	
Tarasp		

Spa Waters imported.—Apollinaris, Bilin, Lithia, Æsculap, Kreuznach (Mother-lye, can be had imported for baths), Kissingen, Harrogate, Contrexville, Vichy, Vals, Bourboule, Ems, Rosbach, Neundorf.

HEALTH RESORTS.

Lungs.

Algiers	Winter	North Coast of Africa
Balearic Islands	Spring and summer	
Bournemouth	More especially winter	
Cannes	Winter	Riviera
Colorado ¹	Summer and winter	Central North America
Davos Platz	Winter and summer	Valley of Grisons (4,805 feet)
Eastbourne	More especially winter	
Eastern Spain	Winter	
Eaux-Bonnes	“	Basses Pyrénées
Egypt	“	
Glengariff	More especially winter	
Hastings	“	

¹ This famous health resort of the Rocky Mountain Range, for consumptives, is one of the finest in the world.

HEALTH RESORTS—*continued.*

Hyères	Winter	Riviera
Jersey	More especially winter	
Madeira	Winter	
Malvern	"	
Mentone	"	Riviera
Mont Dore	"	Auvergne (3,300 feet)
Nice	"	Riviera
Pau	"	Basses Pyrénées (650 feet)
Penzance	More especially winter	
Queenstown	" "	Ireland
Sankt Moritz	Winter and summer	Engadine (6,100 feet)
Southern France	Winter	
St. Leonards	More especially winter	
San Remo	Winter	Riviera
Swiss mountain stations	Summer	
Tangiers	Winter	Morocco
Torquay	More especially winter	
Ventnor	" " "	
Vernet	Winter	East Pyrénées (2,000 ft.)

IMPORTANT SEA-BATHING RESORTS.

England.

Aberystwyth, Cardigan	Lowestoft, Suffolk
Blackpool, Lancashire	Margate, Kent
Bognor, Sussex	Morecambe Bay, Ulverstone
Broadstairs, Kent	Ramsgate, Kent
Clacton, Essex	Ryde, Isle of Wight
Clevedon, Somerset	Sandown, Isle of Wight
Cromer, Norfolk	Scarborough, Yorkshire
Cowes, Isle of Wight	Shanklin, Isle of Wight
Dawlish, Devon	South End
Dover, Kent	Southport, Lancashire
Eastbourne, Sussex	Teignmouth, Devon
Folkestone, Kent	Weston-super-Mare
Ilfracombe, North Devon	Whitby, Yorkshire

North Wales.

Beaumaris	Penmaenmawr
Llandudno	Rhyl

IMPORTANT SEA-BATHING RESORTS—*continued.**South Wales:*

Aberystwith		Tenby
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*Isle of Man.**Scotland.*

Ardrossan		Oban
Nairn		Rothesay

Ireland.

Ardmore		Kilrush
Bray		Portrush
Glandore		Tramore
Kilkee		Youghal

A FEW OTHER BRITISH HEALTH RESORTS NOT INCLUDED
IN THE FOREGOING.

* Ben Rhydding, Yorkshire		* Bridge of Allan
Braemar, Aberdeen		* Pitlochry, Perth
* Crieff, Perthshire		* Melrose, Roxburghshire
* Ilkley, Yorkshire		* Ulverstone, Lancashire
* Matlock, Derbyshire		(Conishead Priory
* Tunbridge Wells, Kent		Morecambe Bay)
* Moffat, Dumfriesshire		

All those marked * have important hydropathic establishments.

THE END.

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